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entering the water. On deflation the appearance is that of a normal costume. Thus, in an emergency, if inflated, there will be sufficient buoyancy to keep the bather afloat until rescued. "Neptune's" suggestion is rather impracticable and probably dangerous, as a swimmer might become entangled in the ropes.

PRURITUS.

DR. ALFRED EDDOWES (London) writes in reply to the request by "W. A." (September 25th, p. 582) for suggestions as to treatment of a case of general pruritus: I advise him to try superfatted boric acid soap, sponging with boric acid lotion, and the application of cold cream (old formula) containing a little boric acid. For severely itching spots try creolin ʒss, mucilage of starch ʒiv, water to a pint. The case is probably a lichen (a sweat rash) aggravated by hot and changeable weather. Lichen tropicus (prickly heat) has been common during the recent spell of hot weather.

"V. G. T." writes in answer to the same query: Probably one of the causes of pruritus in middle and old age is thyroid deficiency; and this should suggest the administration of iodine in some form, such as colloisal iodine, or tinct. iodi mitis mxiij-v in milk ʒj, twice a day.

INCOME TAX.

Deduction of Tax from Rent.

"J. S." explains that in 1922 he paid £4 16s. 9d. property tax (that is, income tax under Schedule A) and the landlord allowed the amount to be deducted from the rent. The authorities have now asked the landlord for payment of £4 16s. 9d. direct, stating that the amount paid and deducted by "J. S." was on a personal assessment under Schedule D.

*** The authorities are clearly not entitled to receive more tax from "J. S." and his landlord together than would have been obtained if the question of the tax deductible from the rent had been kept out of the Schedule D assessment—as, in fact, it should have been. "J. S." should ask the authorities to let him have a statement setting out clearly what tax they consider to be due to him (1) under Schedule A as tenant of the property, and (2) under Schedule D as a medical practitioner. If this statement does not enable him to dispose of the matter perhaps he will forward it to us for further comment. On the facts stated the authorities appear to have no legal claim on the landlord direct in respect of the rent assessable under Schedule A.

Assessment.

"A. G." holds an appointment under a local authority at a salary of £725, *plus* emoluments—namely, free house, coal, and light, estimated at £90 for superannuation purposes. He pays superannuation contributions on £815, and has been assessed on that amount for income tax.

*** On the facts stated he is assessable in the sum of £725 only; the allowances estimated at £90 are not convertible into money, and therefore, under the well known case of Tennant *v.* Smith, are not chargeable to income tax. It should be added that if "A. G." were in receipt of a salary of £815, of which £90 is estimated to be covered by allowances, the result, as far as tax is concerned, would be different.

Motor Car Allowances.

"L. D. T." states that the local inspector of taxes will allow only 15 per cent. depreciation in respect of a motor car, and that he says that if in the future the motor is renewed, no allowance on that account will be made if depreciation allowance has been granted year by year.

*** The rate of the allowance is a matter within the jurisdiction of the District (or Special) Commissioners, and "L. D. T." can appeal to them from the inspector's decision. In our opinion, 20 per cent. is not at all excessive for a car undergoing the sort of wear and tear that a practitioner's car usually suffers, and when the car is discarded and a new one purchased for the reason that the old car is no longer suitable, a claim under the head of obsolescence can be made for the replacement cost, less the depreciation allowance given on that car.

"A. M. J." states that he replaced his car in 1924 at a cost of £240, and that amount has been allowed as a professional expense of the year 1924. The result under the three years' average system is that the assessments for 1925–26 and 1926–27 are affected to the extent of £80 each year, but, as he points out, a change to the previous year's basis for 1927–28 will result in his losing the remaining £80, as 1924 will no longer affect the assessment.

*** The statutory rules which it is proposed to bring into force for 1927–28 are too complicated to explain here; it may be said, however, that there is no provision for carrying the balance of £80 into the calculation of the assessment for 1927–28. Failing the application of any of the modifications introduced to soften the change from the average basis—and it may be possible to find space at an early date to explain the position more fully in the JOURNAL—"A. M. J." has no remedy.

LETTERS, NOTES, ETC.

SODIUM TETRAIODOPHENOLPHTHALEIN IN CHOLECYSTOGRAPHY.

MR. W. HARRISON MARTINDALE, Ph.D. (London, W.1), writes: Mr. Cyril A. Raison, in your issue of September 18th (p. 542), was good enough to mention my name in connexion with the above matter. I am now in possession of a large amount of information concerning the compound, both on the chemical side and on the subject of its use as a diagnostic procedure. I do not think it can be too strongly enforced, or too widely known, that its intravenous use, or that of the bromine analogue, may prove dangerous and is hence undesirable. To take a very rough simile, one might employ a strong solution of sodium carbolate, or phenol, with impunity in ninety-nine cases and in the hundredth case the result would be disastrous. While writing on the subject I may mention that there is a slight confusion in vol. ii of the *Extra Pharmacopoeia* in the nomenclature, which should be put right. The impression when writing the book was that the American workers had preference for phenoltetraiodophthalein and the analogous bromine compound. The names, where occurring, should therefore be transposed, together with the formulae, so as to read tetraiodophenolphthalein. The American papers were a little voluminous and difficult to follow. It is of interest that Graham and his co-workers propose now to revert to the phenoltetraiodo compound, which they originally had in view, but personally I do not anticipate that this compound will be any more safe. Administration of the tetraiodophenol compound by the mouth has, up to the present, proved satisfactory, and I shall be pleased to answer inquiries which medical men may send me.

TRANSLUCENT TISSUES.

DR. S. G. MOORE, M.O.H. Huddersfield, writes: No doubt many of my colleagues have seen the wonderful specimens prepared by Professor Spaltebolz. For my present purpose the essential thing is that in the specimens the tissues are rendered so translucent that, for example, injected arteries are readily seen in relief in transmitted light. I understand that the process of Professor Spaltebolz is a secret. It has occurred to me that if, by any possibility, the process could be applied to living tissues it might restore sight in those cases of blindness due to opacity of the cornea, at least partially. I write in the hope that if the process be not secret some of my colleagues who have the opportunity will make the attempt, and if, on the other hand, it be secret, Professor Spaltebolz will either make the attempt himself or disclose such information as may be useful.

COITUS INTERRUPTUS.

DR. G. F. GUBBIN (Twickenham, Middlesex) writes: In the past belief in family limitation has been considered to apply only, or for the most part, to the upper and middle classes. But is this true of the present time? For some years I have been attached to a southern London dispensary, with the care of out-patients, and was at first puzzled to account for the number of women of child-bearing age who attended for nervous affections without any discoverable lesion to account for them, and who were in consequence diagnosed as "neurasthenia." Later I discovered that most of these cases, other than those at or near the menopause, had very small families, mostly one or at most two children, the youngest of these 5 to 10 years of age, or even older. The question of "Why no more children had been born?" almost always produced the answer, "Because my husband and I do not wish any more children." The final question, "How do you prevent conception?" resulted in the answer, "By withdrawal." I have now the records of many patients who have given me the answers noted above. The usual bottle of nerve tonic is given, but is accompanied with the advice that "those who act contrary to nature must expect to suffer from upset of the bodily machinery." I am convinced that the limitation of families, as above noted, has become general amongst the better educated members of the working classes, but unfortunately education has not yet taught them that actions contrary to nature are dangerous to health. I have been much interested in the literature which has been published in the last few years on the subject of contraception, but have seldom noticed any allusion to the dangers to the health of mothers as the result of its practice. I hope that the publication of this note may produce the experiences of other practitioners about the prevalence of the above-noted method of contraception and its results.

JOHN HILTON.

DR. NOEL R. RAWSON (Whitley Bay) writes: No doubt many correspondents will write to remind Dr. Richard Gillbard (September 25th, p. 582) that in *Menders of the Maimed* Sir Arthur Keith devotes the second chapter to an admirable description of John Hilton the man, and of his work as surgeon and pioneer. He will, moreover, find at the head of this chapter a portrait of the robust, energetic Hilton at the age of 65.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 36, 37, 40, and 41 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *160*.

An Address
ON
THE SCIENCE OF CLINICAL MEDICINE.

Given at the Westminster Hospital, October 1st, 1926,
BY

Sir ARCHIBALD GARROD, K.C.M.G., D.M., LL.D., F.R.S.,

Regius Professor of Medicine in the University of Oxford; Consulting Physician to St. Bartholomew's Hospital and to the Hospital for Sick Children, London.

A voyage down the Thames from its upper reaches to London gives a mental picture of the river, and of its significance, wholly different from that obtained by looking at it from the Tower Bridge. So also it seemed to me, when I was asked to speak to you on this opening day of a new session, that one who has lived through such a period of unrivalled progress in medicine and surgery as the last half-century should have a message to deliver to those who see before them the fruits of that progress, but only as accomplished facts.

It is obvious that the medicine which you are learning to-day is very different from the medicine which we set out to learn fifty years ago. In the interval the work of the bacteriologist and protozoologist has changed our conceptions of the nature of disease, and has revealed exquisite mechanisms by which the organism protects itself against the assaults of the agents of disease. The Listerian methods have revolutionized surgery, and have widened its scope immensely. By combating the insect carriers of those maladies vast tracts have been freed from malaria and yellow fever. From the biochemical side also there have been great advances, and terms such as "hormone" and "vitamin," which embody conceptions of which we in our student days had no inkling, have become household words.

New and far more delicate methods of diagnosis have been devised; the range of therapeutic measures has been greatly widened, and even dietetics is being placed upon a scientific footing.

All this has entailed profound changes in the curriculum, and has added much to what you have to learn. Even the longer curriculum is becoming seriously overladen, and the student's burden is causing much concern to his teachers, who look round to see what can be jettisoned. The student himself, I am bound to say, appears much less perturbed thereby.

But not only is the subject which you study, and the curriculum laid down for you, greatly changed; you yourselves have a very different outlook from that of the students of the past. The change of ideals and standards of the student of to-day—the schoolboy of the war time—is not easy to define in words, but is very evident to those engaged in teaching in our schools and universities.

Demands on the Medical Student.

I would begin by pointing out to those of you who are just entering upon a medical career that two separate demands are made upon you. The first is that you shall acquire a working knowledge of the sciences upon which medicine—and I use the word in its widest sense—rests. You need to study at the bedside and in the laboratories the signs and symptoms of maladies; to acquire the technique of the therapeutic measures at our disposal, and to become skilled in their application. Without such knowledge and skill no man can expect to practise our profession to any good purpose; and to impart them is the function of the medical school. The student learns from his teachers at the bedside, from lectures and demonstrations; from practical experience under guidance, and from his fellow students. Lastly, what may be called the atmosphere of his school, that mass of floating knowledge which forms its tradition, and is handed down from generation to generation of teachers and students, plays no small part in his education.

But, apart from his professional competence, the medical man, who is brought into peculiarly intimate contact with his fellow men, must have other qualifications for his task. He needs to be equipped with tact, resourcefulness, courage, and prudence. He must have patience with fads, considerateness for his patients and their friends, sympathy with suffering, and gentleness of touch and voice. Much indeed is asked of him, but without these qualities, be he never so able, he will make but a poor practitioner. Of this side of the medical profession I do not propose to speak further, seeing that its scientific side is my theme to-day; but I am anxious to emphasize, at the outset, the importance of the human aspects, which each student must learn for himself, aided by the example of his elders.

Fifty Years Ago and Now.

The student of fifty years ago almost always entered upon his studies with the intention of taking up some branch of practice, or of entering one of the public services. Few alternatives were open to him. There were no bacteriologists, pathology was synonymous with morbid anatomy, and the men who, from the end of the eighteenth century onward, had laid the foundations of biochemistry in this country were all practising physicians. They, and others of scientific bent, pursued their researches in the period of waiting for practice and in its intervals, but nevertheless they were pioneers, not only of the medical, but of other sciences also.

Nowadays the position is very different. In addition to the physiologists, most of whom still go through the medical curriculum, not a few qualified men turn aside from the path of practice and devote their lives to teaching and research in the various branches of pathology or in pharmacology.

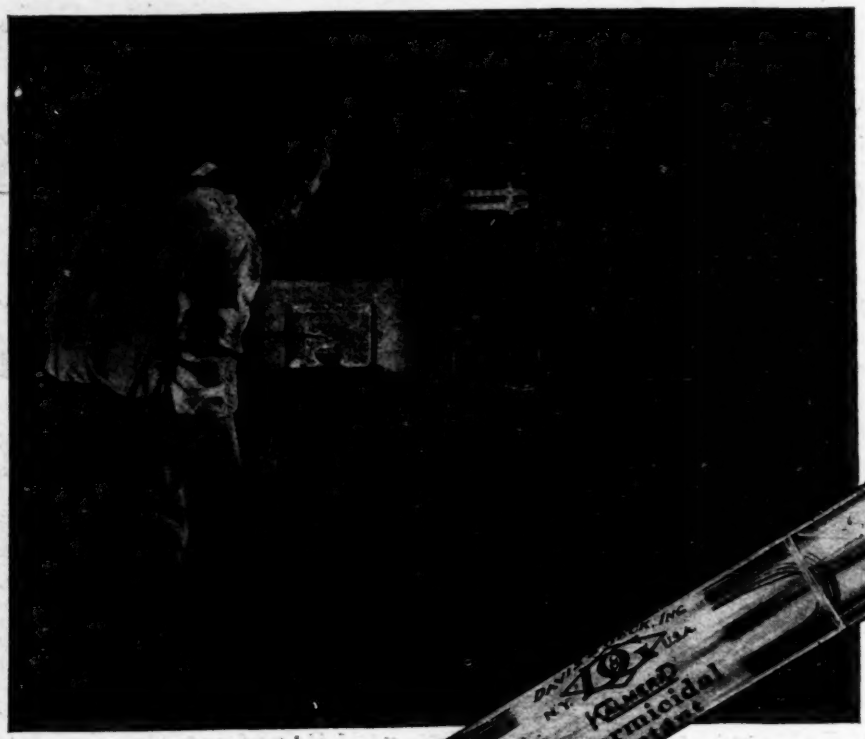
This has its advantages and its disadvantages. On the one hand, some men of scientific tastes and interests—for whom the work of the laboratory has great attractions, whereas the practice of medicine has none—enter the profession, and by their researches contribute greatly to the advance of our science and art. In that way medicine is the gainer. But, on the other hand, there is real danger that the great majority of men of scientific bent will turn aside and desert clinical work, in order to devote themselves to work in the laboratory. This tendency is increased by the attitude of some of the laboratory workers, who regard clinical medicine as a subject hardly worthy to attract men of scientific ability. So there has been a drift apart of the ward and the laboratory, which is far more pronounced in this country than elsewhere, since it is only recently that complete clinical units, with wards and laboratories under a single head, with trained assistants, have been established amongst us.

The Scientific Spirit and Clinical Medicine.

It will be my endeavour to convince you that there is abundance of work to be done on clinical subjects by strictly scientific methods; and seeing that much of the information to be sought can only be got by clinical research, it would be nothing short of a disaster if all, or nearly all, those qualified by tastes, training, and opportunities to pursue clinical investigations on such lines should desert the wards for the laboratories.

The study of pure pathology and of the problems of immunity entails experimental investigations by men highly trained in the subjects and the methods employed, in bacteriological technique, and chemical manipulation; and those who devote their lives to such work are most valuable members of the profession. But, on the other hand, the mere fact that a piece of work is done in a laboratory does not make it a scientific research; and the routine of clinical pathology is not more scientific than the examination of a chest, the diagnosis of a lesion of the brain, nor even than the careful taking of notes at the bedside.

It is not to be expected that everyone who enters upon the practice of medicine will approach his work in a strictly scientific spirit, and with zeal to contribute to the advancement of knowledge, although he must employ scientific methods. It must needs be that the bulk of the members of our calling will, owing to the incessant demands upon them, have little time or opportunity for investigation on broad lines. They must be content, willy-nilly, to carry out the day's work with practical skill and



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chemical and microscopic tests which can be made at the bedside, and may come to rely upon reports from the laboratory of examinations which he has not himself carried out. To this danger all examiners in medicine and surgery are keenly alive.

Scientific Therapy.

The treatment of disease, also, is developing along scientific lines, and in no part of the field of medicine has more conspicuous progress been made during the last fifty years. The advances of surgery, which have been rendered possible by Lister's researches, are obvious and generally recognized. It is the privilege of the surgeon to obtain more definite results; he removes the inflamed appendix and the danger to the patient is at an end; by the sacrifice of a limb the whole body may be saved. The physician, on the other hand, has usually to help the patient to hold his own whilst Nature works a cure. It is one of the most important lessons learned during the last half-century that the physician is not the protagonist in the fight with disease, and the patient's body the battlefield, but that Nature has provided the patient with power to produce drugs far more potent than any which we were wont to use, and so discriminating that they can destroy the particular attacking bacteria or neutralize the toxic substances which they produce. The extensive use of sera and vaccines in the present day represents our attempts to utilize Nature's own remedies; and we may hope that, in due course, we shall be able to give them as pure products, free from undesirable admixtures.

Many of the old drugs, introduced at the dictates of fantastic theories, of astrology or of magic, are falling into disuse, and others, of proved value, are being investigated on pharmacological lines, and their mode of action and the limits of their utility are being determined. But we are bound to admit that amongst the old drugs, introduced on no scientific grounds, there are not a few which are of great value, and have for centuries contributed greatly to the healing of the peoples. Now that we know better how and when to use them their utility is greater still.

Dietetics, for long the most backward and empirical branch of medical treatment, is coming within the scope of scientific therapeutics. The discovery of the vitamins, and the appreciation of the importance of calorie value of foods, are signs of the times, but we still give advice on diet for which we can give no scientific reasons and the utility of which rests upon no firm basis of experience.

The advance of science is furnishing us with new methods of treatment, with most of which we are still feeling our way. I need only to mention Roentgen rays, radium and its emanations, light and ultra-violet rays, the recent developments of electrical treatment, of massage and manipulative measures. Lastly, a tribute must be paid to the nursing methods of the present day, which strengthen our hands so greatly in the fight against disease.

The Pursuit of Clinical Research.

So far I have spoken of scientific knowledge and method, as applied to the recognition, control, and treatment of disease, but what I particularly wish to emphasize is the fact that the clinical observer has abundant opportunities for the study of disease as seen in the human subject—in other words, for the pursuit of clinical research. Much of the knowledge so obtained is not to be had from experiments on animals; for a human patient can describe his sensations with greater or less accuracy, and can tell us of the medical history of himself and his family. Such work as that on the sensory nerves which we associate with the name of that great observer Henry Head could not be done in any other way.

Although it is established that, in the majority of instances, illness results from the invasion of the body by micro-organisms, vegetable or animal, or by poisons of inorganic origin, and although such immense help has been got from the culture and study of such organisms and of their effects upon lower animals, and by the experimental study of the phenomena of immunity, we cannot learn in the laboratory all that we need to know about disease.

What we call disease is the response of the organism to the invasion of the agents of disease, and, seeing that no two individuals are exactly alike either in structure or in chemistry, sickness does not conform to any single model; each individual case calls for careful observation. Owing, as I believe, to their chemical individuality different human beings differ widely in their liability to individual maladies, and to some extent in the signs and symptoms which they exhibit. Hence it will be found a useful maxim that there is no such word as "never" in medicine. Rules which appear to be immutable turn out to have their exceptions.

Many idiosyncrasies are obvious and notorious, such as the sensitivity of individuals to special drugs, or particular articles of diet, which have no ill effects upon others. As examples may be quoted the manifestations of sensitivity to proteins, seen in the various forms of urticaria, in hay fever, and in varieties of asthma. Light also is an agent which affects various individuals in very different ways. Usually beneficent, it produces unpleasant effects upon the skin of some individuals, and to a very few who are victims of congenital porphyrinuria it is a veritable poison.

Again, the minor injuries which are necessary accidents of the wear and tear of life vary greatly in their effects. In the bleeder a trifling knock may produce grave trouble in a joint; in victims of that strange anomaly fragilitas ossium it may cause a fracture; in a gouty subject it may induce an attack. So do our idiosyncrasies and our circumstances contribute to the moulding of our maladies. All this is the true basis of the doctrine of diatheses now unduly neglected.

Pioneers in Clinical Research.

It is by clinical observation, controlled by morbid anatomy, that almost all the maladies with which we are familiar have been differentiated. By the study of groups of allied cases, of the signs and symptoms met with during life, and of the lesions found after death in fatal cases, the door has sometimes been opened to wide extensions of physiological and pathological knowledge.

One of Nature's experiments, the placing of a lesion in some particular spot, may serve to reveal the functions of the part affected. Let me illustrate this point by a particular instance.

In the year 1855 Thomas Addison, one of the greatest clinical observers which this country has produced, published a description of *The Constitutional and Local Effects of Disease of the Suprarenal Capsules*. In the preface to his pamphlet—one of the classics of medical literature—after pointing out that the pathologist may sometimes be able to throw much light upon the functions of diseased organs, and that we are apt to forget how much of our physiological knowledge has been revealed by casual observations of the effects of disease, he goes on to speak of the adrenals, and adds: "It is as a first and feeble step towards inquiry into the functions and influence of these organs, suggested by pathology, that I now put forth the following pages." Yet that "feeble step" was destined to be epoch-making; for Addison's description of the disease which goes by his name was the starting-point of our present knowledge of the functions of the endocrine glands; and the recognition of the hormonic action of their secretions, and of their mutual interdependence, constitutes one of the most conspicuous advances of physiology and pathology during the last half-century.

It is true that the malady which we call exophthalmic goitre was described by Caleb Parry, Graves, and Basedow at a much earlier date. Those observers recognized the association of the cardiac and ocular symptoms with enlargement of the thyroid gland, but it was not until much later that it was realized that the affection of that gland was the pivot of the clinical picture, and that to derangement of its functions the other phenomena were due.

Since Addison's day clinical observation has continued to play a conspicuous part in this field of pathology, as witness Gull's work on myxoedema, the highly original researches of Brown-Séquard, the recognition of acromegaly by Marie, and of its antithesis by Fröhlich, and the surgical labours of Harvey Cushing and others.

Let us pause, then, to consider how Addison set to work. He noticed that a certain group of symptoms was apt to occur in association—namely, anaemia, debility, remarkable feebleness of the heart's

common sense, making good use of what they have learnt from their teachers and from their own experience. Yet not a few of those so circumstanced make important contributions to medical knowledge.

On the other hand, it must not be forgotten that the knowledge upon which the art of medicine is based has been gained by work done on scientific lines, by methods of observation and experiment. All the great therapeutic advances of recent times have been the outcome of scientific investigation; and in medicine, as in other sciences, investigations carried out with no practical aim have proved very fruitful in practical results. It is to scientific research that we owe aseptic surgery and all that it has rendered possible, the conquest of insect-borne diseases, the banishment of the typhoid terror from campaigns, the discovery of the vitamins, and the utilization of hormones. No better example can be quoted than the history of insulin, from the experiments upon dogs of von Mehring and Minkowski to its widespread benefits in the present day.

Now that the curriculum is becoming so crowded there is being put forward a view that in the medical training unnecessary stress is being laid upon the earlier stages, and that the student learns much more than he needs of the details of anatomy, and even of physiology. Believe me, this is a dangerous doctrine. Anyone engaged in clinical teaching knows that the clinical clerk or dresser who has been well trained in those subjects has a quite different grasp of medicine or surgery from that of a student who has only acquired the minimal amount of knowledge needful. However good a practitioner he may make, the man whose knowledge of physiology is slight is little likely to advance the science of medicine; for pathology is anatomy and physiology gone wrong.

I know well that there is a limit to what a student can do in the time allowed, but in building a house it is a bad plan to skimp the foundations. Given solid foundations the upper stories may be added at discretion. The great majority of us learn what anatomy and physiology we acquire during our student days, but medicine and surgery we are teaching ourselves each day of our active lives.

Branches of Clinical Science.

The science of clinical medicine has several distinct branches, in which different means are employed and different results are aimed at, and these it will desirable to consider in turn.

In the first place, the clinician seeks to know the nature and seat of the patient's illness, and without such a diagnosis his treatment must needs be perfunctory. His next aim is to do what he can for the relief of the patient's symptoms, and, if possible, for the arrest of his malady. These are the direct and immediate aims of the practitioner, but behind and beyond them is the study of disease, as it manifests itself in the living human subject, the gaining of new knowledge, the advancement of our science and enlargement of our art.

The Science of Diagnosis.

The science of diagnosis is, in the main, a science of observation, the aim of which is to detect in the living patient processes and lesions which are beyond our reach, but which would, in most instances, be revealed at a *post-mortem* examination. Yet it rests largely upon *post-mortem* teachings, and all who aim at becoming capable diagnosticians should take advantage of every opportunity afforded to them of seeing, and whenever possible conducting, such examinations. Such opportunities are most common during student days, and only too many of us regret in after life the neglect of such opportunities; for morbid anatomy, one of the most important subjects in the medical curriculum, can only be learnt by personal observation. Do not forget that there is an immense difference between facts which we *know* and facts with which we are merely acquainted. Facts which we know are not those about which we have read, or have heard in lectures, but those which we have observed, apprehended, and confirmed for ourselves. We need no *memoria technica* to recall a fact which we *know*.

Some diagnostic methods are simple and involve merely the use of our senses—of our eyes, ears, nose, and fingers; others require the use of instruments of more or less complexity; and others, again, involve chemical or bacteriological examination of the blood or excreta, by methods usually carried out in the laboratory. It is hard to realize how recent most of our diagnostic methods are. Auscultation and percussion were only brought into use at the end of the eighteenth century; the clinical thermometer came into general use in our hospitals as recently as the seventies of last century. Blood counts began in the same decade, and the importance of leucocyte counts was only recognized in the nineties. Since then our diagnostic resources have been largely increased. The discovery of the tubercle bacillus, and its ready detection in the sputum of many sufferers from pulmonary tuberculosis, opened the way for wide applications of clinical bacteriology—the detection of various bacteria on the one hand, and the agglutination tests on the other. More elaborate means, such as the Roentgen rays and the electrocardiograph, have rendered our findings far more precise, and we now have methods of testing the functional efficiency of such organs as the liver, kidney, and pancreas.

As long ago as the middle of the last century uric acid was detected, and estimated, in the blood of the gouty, but in recent years methods have been devised which render possible the estimation, not only of urie acid, but also of glucose and urea, in a few cubic centimetres of blood.

All these refinements and advances have not superseded the older and simpler methods. It is as necessary as it ever was that the medical man shall be trained to make use of all his senses, supplemented by the stethoscope and thermometer. A laboratory is not always within reach, and it is often necessary to act before a bacteriological report can be had. Moreover, the older methods have been improved, and pulmonary tuberculosis is now usually diagnosed by auscultation and percussion at a stage at which it would have escaped recognition fifty years ago.

Auscultation and percussion are strictly scientific methods. Consider for a moment how by such means it is possible in very many instances to ascertain beyond all doubt that a patient's lung is consolidated, or that his pleural cavity contains fluid; that his heart is hypertrophied or dilated, or that there is narrowing of a valvular orifice or leaking of a valve. Such diagnoses involve accurate observation and sound interpretation of the signs observed, and the confidence with which we make them is due to confirmation of such diagnoses at many *post-mortem* examinations.

Lesions of the nervous system often present difficult problems of localization, for the brain and spinal cord are wholly out of reach of direct examination. Yet by making use of the findings of experimental physiology, and the teachings of morbid anatomy, it is usually possible to make a correct diagnosis of the seat and nature of a cerebral or spinal lesion—just as a man who is thoroughly conversant with the telephone system may, by comparison of observations made in several branch offices, diagnose accurately the place, and form a shrewd notion of the cause, of an interruption in a central office which he cannot visit.

A diagnosis often involves replies to two questions—namely, Where is the lesion? and What is its nature?—but the answers often hang together. For example, the signs and symptoms, in a particular case, point to a lesion of the head of the pancreas, and experience teaches that such a lesion is almost certainly a carcinoma. Yet a diagnosis may be right in one respect and wrong in the other.

There are some people who possess a natural diagnostic insight, and others who acquire such an insight by long experience. The accumulated impressions, derived from cases seen at various times, may point to a right solution. Just as a child spells out the letters of words, and a beginner translates laboriously what he reads in a foreign tongue, so the medical student runs over in his mind the possible causes of an observed sign or symptom. But experience allows such conscious effort to be dispensed with, the foreign words come to convey their meaning directly, the clinical picture suggests a correct diagnosis.

One of the dangers which beset the medical student of to-day is that he may be tempted to neglect that thorough grounding in auscultation and percussion and the simpler

An Address ON PROFESSIONAL CAREERS.

DELIVERED AT

King's College Hospital, October 1st, 1926,

BY

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Your presence here to-day proves that you have entered on a profession with a choice of fields of activity probably unequalled in any other, and presenting great contrasts in the circumstances and positions of its members. To take up the wrong branch, to be a misfit, may be a tragedy, and it is therefore essential to consider carefully this momentous decision. Some of you may have already settled on your future, and there may be compelling reasons for this; but otherwise it is wiser to wait and to do the day's work, which is exacting enough; to attempt now any decision as to the particular line you will eventually follow may be premature—namely, before you have seen enough to be able to know what really appeals most forcibly to you, what you are best suited for, and how far this is possible. The data may not be available until after qualification, when unexpected opportunities may arise, or circumstances show what is your true bent. There is much wisdom in the advice "Do not specialize too early," for the important point is to get a good general grounding in the vast subject which you propose to profess. In the meanwhile there are some general considerations on the careers open to you.

In some respects the medical profession, especially at the present time, compares favourably with other professions. In the first place, with the expansion and rapid development of medicine there are more opportunities and varied openings than ever before. Secondly, apart from accidents, illness, and grave misconduct, a competence or living wage is within the reach of practically all qualified medical men who choose to work. The panel system has, in spite of the initial forebodings and opposition, really improved conditions for the rank and file of the profession. As a profession medicine does not bring wealth or a great position to more than a few, but it has an immense amount of gratuitous work to its credit, and is exposed to the frequent danger of infection from attendance on the sick, and the occasional risk of vexatious legal actions for supposed malpraxis and improper certification of the insane. To enter on "the physic line" as a means of livelihood is justified by the results, but as a path to great material prosperity the way is long, treacherous, and may land the traveller in a slough of disappointment. In spite of Sir Robert Peel's dictum that "Nothing is so misleading as facts except figures," it may be a comfort to remember that statistics got out at various dates by Sir James Paget,* Sir Squire Sprigge (1906), and Mr. E. M. Corner (1920) show that on an average over 75 per cent. of medical students obtain a qualification, and that according to the first two authorities 66 per cent. of those qualified have reason to be satisfied with their professional success.

It may be interesting to contrast the financial rewards of the medical and legal professions. As medicine is an almost universally essential profession, practically all qualified men can earn a living; inquiry from men of acknowledged experience shows that before the war the average professional income was about £500 a year, and that now it is about £750, in both instances gross, so that with the present high income tax it is not much more than formerly. On the other hand, the number of barristers briefless, whether voluntarily or of necessity, is comparatively large, whereas the prizes are much greater and more numerous among barristers than among medical men. This might seem to be contrary to the usual relation between supply and demand. But according to Adam Smith the wages of labour in different employments vary according to the probability or improbability of success in them, and he instances the almost uniform success attained by apprentices to shoemakers, with the twenty to one chance of earning a living in the law, and adds that "in a perfectly fair lottery those who draw the prizes ought to gain all that is lost by those who draw blanks, and that in a profession in which twenty fail for one who succeeds, that one ought to gain all that should have been gained by the unsuccessful twenty." Now in accordance with this axiom it would appear that as the vast majority of medical men succeed in earning a living the winners of great prizes should be exceptional, and so it works out.

So far reference has been made only to the popular, material, or even sordid standards of success, and it should be unnecessary to proclaim the higher motives that may make the pursuit of medicine a satisfying career—the intellectual interest in the attempt to solve the innumerable problems presented by the sick; the opportunities for studying the nobilities and frailties of human nature; and last, the personal and almost sacred call of the service of our fellows. After all there is much truth, if a little exaggeration, in the forcible dictum that "Medicine is a noble profession, but a damned bad trade."

General Practice.

General practice is still, in spite of increasing specialism, the future field of activity for the largest number—probably three-quarters—of qualified medical men, and there is plenty of scope and opportunity. Any medical man or woman can be on the panel for the fifteen million insured persons in England and Wales, and the financial and other conditions on the panel are superior to those of its predecessors the clubs and friendly societies. In England there are at present 12,696 men on the panel, or nearly half (46 per cent.) the estimated 27,600 men practising in England; but there are only 434 women on the panel, or one-fifth (19 per cent.) of the 2,209 women in practice. For these figures I am indebted to Dr. Smith Whitaker of the Ministry of Health. This rather striking difference in the sex personnel of panel practice may be in part due to women preferring to confine their work to their own sex and to children. But this is not the whole story, for unfortunately at present the public as a whole have not become accustomed to women doctors, and as a rule the panels of women doctors are not crowded. Time no doubt will cure this, as other inequalities, but in the meanwhile women doctors are not finding it so easy to earn a livelihood in general practice as their brothers. The profession received a large influx of women during, and of both men and women after, the war, and the peak of the wave in qualifications has only recently been reached, so that there is some reason to fear a temporary overcrowding in the profession. A number of official posts in public health, infant welfare, and so forth in this country, in India, in the Zenana Mission, and elsewhere in the mission field, are available, in which women doctors can find congenial occupation and a living.

It is sometimes thought that the public medical services encroach on the general practitioners' preserves, and in time will lead to their exclusion. But Sir George Newman, who is in the best possible position to know, points out that in reality the reverse is true:

> "For the Poor Law medical service has 4,000 medical officers for outdoor medical relief, practically all of whom are private practitioners; the Post Office list of 3,500 medical men are all practitioners; out of 1,450 medical officers of health, 1,100 are private practitioners, and only 350 are whole-time officers; of the 1,800 medical men engaged by local education authorities in the inspection and treatment of school children, 1,000 are in private practice; of 1,770 certifying factory surgeons, all, hardly with exception, are private practitioners; and the whole of the national insurance service is in the hands of private practitioners."

Some other lines of work allied to general practice may be briefly mentioned. Examining for life insurance is usually a small item in a general practitioner's life, but some men by holding appointments under several offices spend most or even all of their time in this work. It is, of course, true that the chief medical officerships of large insurance companies are usually held by consultants and hospital physicians.

*At one of his introductory lectures Abernethy looked round at the crowd of students and exclaimed as if in painful doubt, "God help you all! What will become of you?" His successor, Sir James Paget (1869), attempted to answer this question by analysing what became of a thousand of his pupils within fifteen years of their entrance to St. Bartholomew's Hospital.

action, irritability of the stomach, and a peculiar dingy or smoky discoloration of the skin—and that in every case in which this syndrome was met with extensive disease of the adrenals was found *post mortem*. So constant was this association that, in the later cases of the series, the disease of the adrenals was predicted during the lifetime of the sufferer. Addison's disease is decidedly uncommon, but, as it is uniformly fatal, he was in a position to verify his conclusions in the majority of the cases.

For my next example I will go to the remarkable series of papers by William Jenner on the differentiation of typhoid and typhus fevers, in which also we may admire the workings of a great clinical talent. Jenner's conclusions were based upon a series of sixty-six fatal cases of continued fever, all of which had come under his own observations in the London Fever Hospital, and in all of which autopsies had been made. The first of these papers was published in 1849, and at that time, although various observers, in this country and abroad, had maintained that typhoid and typhus fevers were specifically distinct, the trend of current opinion was towards their inclusion as varieties of the same disease. To quote his own words, Jenner

> "considered that it was necessary to begin *de novo*, and consult only the voice of Nature—convinced that although the most intellectual might fail at first to comprehend her often ambiguous language, yet her most humble votaries might, by patience and daily watching, by keeping honest record of every sound she uttered—by joining letter to letter, adding word to word and line to line—at last spell out her meaning, and so reach that rank which the great master of induction tells us man may legitimately hope to attain—namely, that of her interpreter."

This is the true scientific spirit, and following its guidance Jenner was able to settle the point at issue once and for all, on evidence which carried conviction.

He investigated the place of origin, age, and circumstances of each patient in his series, collated the observations relating to each symptom in turn, and showed that the outcome of clinical observation accorded with that of *post-mortem* examinations, and that from the character of the rash alone it was possible to predict the presence or absence of intestinal lesions.

Jenner's monograph is one of the foundation stones of the statistical method in medicine, which he defended warmly against those who prefer to rely upon general impressions. "Who," he asks, "can tell what general statements are worth, without knowing on what evidence they rest? One man's many is another man's few; one man's frequent is another man's seldom."

In the histology of neurology examples abound of the employment of clinical methods in scientific research. Of one who may justly be styled a clinical genius, Hughlings Jackson, it has been said with truth that "his advent infused a new spirit into neurology, and was the beginning of that systematic orderliness which now characterizes neurology, more perhaps than any other branch of medical science." Both physiology and pathology owe to him a great debt; and I believe that I am right in saying that his contributions to science, from the discovery of the association of convulsive attacks with lesions of the cerebral cortex, to the wide and important generalizations upon which his fame largely rests, were the outcome of bedside observation controlled by morbid anatomy.

The brilliant researches of James Mackenzie, begun, and largely carried out, in the intervals of a busy general practice in a northern town, lend further support to my thesis; for that work has opened a new era of cardiac investigation, and has changed the aspect of the physiology and pathology of the heart.

I have chosen a very few examples from the past—some of them from days when the clinical thermometer was still unknown, and the bacterial origin of disease was not dreamt of—of researches which conform to every canon of science, and which were carried out at the bedside and in the *post-mortem* room by British clinicians who have obtained places in the medical Valhalla. It would be easy to enlarge the list so as to embrace such men as James Paget, Jonathan Hutchinson, W. B. Cheadle, and that great physician whose death we have so recently deplored, John Thomson of Edinburgh. The inclusion of workers in other countries would greatly swell the roll, and I might equally well have taken my examples from men now living. But, for my purpose, and for the support of my thesis, the examples quoted will suffice.

If, with the far scantier means at their disposal, the clinicians of the past were able to accomplish so much, how much more may be expected from those of the present and future, who are so far better equipped? Although it is true that the nuggets lying upon the surface have been picked up, mining operations, for which this generation is well equipped, should reveal much that is still hid.

In my young days the maps of Africa showed a border of the known around vast areas of the unknown; and in the medicine of to-day there are still large blank spaces to be filled. What do we really know of the true nature of the leukaemias, despite the many differential blood counts of recent years? These carry us to a point, and seem to be unable to take us further. A new road needs to be blazed out, by the collaboration of the laboratory and the ward.

Scope for Scientific Work in Clinical Medicine.

If, as I have tried to convince you, there is abundant scope for scientific work in clinical medicine, why is it necessary to point this out, and why do we so often hear the contrary opinion maintained, especially by laboratory workers? Is it not because medical men too often do not realize the requirements of scientific method? If we are to hold our own as members of the army of research, we need to see that our work is up to the required standard; that our observations are sufficiently precise, and are confirmed by the method of control; that our statistics will bear examination by statisticians, people whom it is not easy to satisfy, and that our hypotheses are legitimate inductions from facts which are clearly established.

There are, however, obvious difficulties which make it hard and often impossible for the clinician to be as exact in his methods as he would wish. Medicine is always in a hurry. The patient and his friends are only too apt to mistake scientific caution for incompetence; to demand a cut-and-dried diagnosis in an impossibly short time; and to estimate a ready dogmatism above a reasoned uncertainty. Time is often pressing, and the doctor is obliged to act upon very incomplete evidence, lest, whilst he waits for certainty, valuable hours must be lost. He cannot always put his treatment to the test by trying one measure at a time; and, again, he is bound to forego any diagnostic test, or even a thorough examination, if it appears to him that it might in any way be harmful to the patient. These are only a few of the hindering factors which are familiar to all practitioners.

You will have to realize that to a large section of the public all science is under suspicion, and scientific medicine is distrusted. A profession which makes a free gift to mankind of all its discoveries is widely regarded as a close corporation of people who look askance at men cleverer than themselves, merely because they have not had a medical education, or because they base their treatment upon heterodox theories. This phase of thought is by no means helpful to him who would advance the knowledge of disease, and, through knowledge, its treatment.

In conclusion, let me repeat that for the clinician, as for the laboratory worker, and especially for both working in co-operation, there is abundant scope for original investigation—that highest product of the scientific spirit. We are not all built to do such work, and there are excellent investigators for whom an obvious practical aim is a necessary stimulus to research; but for those who are content to seek knowledge for its own sake there are great rewards; for the discovery of a new fact, however small a one, or the framing of a conception which throws a beam of light into some dark corner, brings a satisfaction which is without alloy.

Yet the way of the investigator is rough, and there are many disappointments to be faced. In the words of Ecclesiasticus:

> "For at the first Wisdom will walk with him by crooked ways and bring fear and dread upon him, and torment him with her discipline, until she may trust his soul and try him by her laws. Then will she return the straight way unto him, and comfort him, and show him her secrets."

May she show her secrets to those of you who shall elect to tread her path.

occasional good to those who yield it an implicit or even partial faith." But every successful doctor, by kindly and firm encouragement, is consciously or unconsciously practising suggestion

It has been thought that education of the masses, and of the classes, is the only way of getting rid of quackery; but with all the modern improvements and spread of education there is as much, or more, irregular practice as in the past. That great ability and learning do not prevent such infatuation is shown by many examples in the past as in the present—for example, Sir Kenelm Digby and the "sympathetic powder" (1658), and George Berkeley, Bishop of Cloyne, universally acknowledged to have been one of the most accomplished of men, who, in *Philosophical Reflections and Inquiries concerning the Virtues of Tar Water* (1744), advocated tar water as a panacea. The encroachments of irregular practitioners on orthodox medicine are annoying, but, as already said, they will last in some form or another as long as human nature is what it is.

Careers in the Services.

In the past men sometimes entered our profession because, being debarred by bodily defect or failure in negotiating examinations from the executive branches of the army or navy, their ambitions were to some extent met by being medical officers in the services. The call of adventure and the itch to travel attracted some entrants into the fighting and colonial services; a life of varied interests, an assured rate of pay, and the prospect of a pension to provide for retirement also weighed in the choice of the services; but the shortage in the services at the present time, possibly an aftermath and revulsion from the war, shows that these factors are somewhat in abeyance, and accordingly short commissions of four years or so with a gratuity on leaving, which helps in starting a practice, have been established. The opportunities for research and investigation have much increased in the naval and military medical services, and that devotion to scientific work is compatible with gaining the highest offices in the medical department of the army was shown by the appointment of the late Lieutenant-General Sir William Leishman as Medical Director-General. The new problems in connexion with aviation attract keen men of the kind wanted in the Royal Air Force. Tropical research, with its great potentialities, is specially open to those in the colonial service.

The increasingly active health services provide a large number of official positions, not only part-time, which, as already mentioned, are chiefly occupied by general practitioners, but whole-time appointments, and these posts are likely to increase in number and importance. Appointments in fever and mental hospitals and sanatoriums are, of course, whole-time, and provide opportunities for research and openings for men who are attracted to these special branches of medicine.

Careers as Specialists.

The development and ever-expanding scope of the healing art have long made it impossible for one man to be encyclopaedic, much less to attain the technical skill to be competent in all its branches, and specialism has, after the necessary period of probation and some disapproval, become fully justified and recognized. But it is of comparatively recent growth; Sir Benjamin Brodie (1783-1862), President of the Royal Society and of the Royal College of Surgeons, is made responsible for the dictum "A specialist is half a quack." Special hospitals, such as the Royal Ophthalmic (1804), Royal Hospital for Diseases of the Chest (1814), and the Royal Ear Hospital (1816), have been in existence for more than a century, but forty years ago or less specialism was not more than tolerated by the leaders of the profession. It is important that medical men should not specialize too early, before they have obtained a broad view of medicine as a whole, otherwise they will not be able to see the wood for their intense focusing on the constituent trees. It is unwise to build a complex structure of unseasoned material, for it may subsequently shrink into a useless if not harmful article. Wise specialism is of the greatest advantage for the progress of medicine, but its followers should know something about everything medical as well as everything about their own branch. Without taking a reactionary view, there is a danger that specialism may be exaggerated and that parts of medicine which should be within the reach of every competent medical man may be prematurely elevated into a specialty; in ancient Egypt there was a phase (B.C. 500) when each disease had its practitioner, who confined his activities to that one condition. To be a clinical specialist has mercenary advantages, for practice comes earlier and the lucrative rewards may be considerable.

The pathologist, bacteriologist, serologist, and biochemist belong to a special branch of medical practice which has a progressively increasing scope of activity, as is shown by the overwhelming flood of new work on these fundamental sciences; from a material aspect, the recommendations of the Royal Commission on Health Insurance, if carried into effect, will increase the number of official posts available for those whose abilities and temperament render them better suited for laboratory investigations than for clinical practice, and who therefore prefer the quiet pursuit of truth in the laboratory to that of wealth in a limousine or a Ford. Intellectually, laboratory research—with the possibility of making a permanent addition to knowledge, which will advance scientific medicine and so benefit suffering humanity—has an appeal of the highest order, and all honour to those who are able and willing, for we are not all so gifted, to follow the call. It can hardly be too often emphasized that, in the best interests of all concerned, the clinician and the laboratory worker should be in constant and close touch, and indeed in the whole-time directors of professorial units they are combined. The laboratory worker should, for his own sake, have a full and experienced training in clinical medicine.

Radiology is one of the newest specialties, and from the amount of technique necessary is fully justified in being so regarded. The interpretation of the appearances seen on the screen and in films demands an extensive acquaintance with anatomy and physiology, and above all with clinical medicine. The action of x rays and of the rays of radium provides great opportunities for research, both biological and physical; the influence of radiation on the tissue cells, in destroying and in stimulating them, and on the blood, and the therapeutic effects on malignant disease, have raised problems which await further investigation and are therefore attractive to men keen on research.

Anaesthetics is a branch of therapeutics, and has become a specialty in large centres where there is sufficient demand for men who devote their whole time to this work. On the other hand, it is hardly marked off so sharply as are the other specialties, and is often adopted as a part-time occupation by men in general practice or while waiting for some post on the surgical side of the hospital. The subject is allied in practice more with surgery than with medicine, and offers considerable opportunities for research into the various new methods that have recently been employed.

Careers in Consulting Practice.

Consulting physicians and surgeons, though often dubbed "specialists" by the public, are not usually regarded by their professional brethren in the same category as those who practise ophthalmology, gynaecology, laryngology, otology, psychiatry, orthopaedics, and other legitimate specialties. The general consulting physician and surgeon have had their wings somewhat clipped by the growth of specialism, and indeed hospital physicians now commonly pay more particular attention to some branch of their subject, such as diseases of the heart, lungs, nervous system, or alimentary canal. It is more especially the general consulting physician who has suffered, and the wait for monetary success may be so long that without private means the struggle is disheartening. Few consulting physicians were more successful than Sir Andrew Clark (1826-1893), who said that he had to work ten years for bread, ten years for bread-and-butter, and twenty years for cakes and ale; it is not given to all to practise for forty years, or if they do, to reach the material rewards of the last stage. Money may be a mark of success, but there are other conceptions of success, and it has been written "What shall it profit a man if he gain the whole world and lose his own soul?"

With surgeons the outlook is very different, for their

With the progress of medicine to a preventive standpoint the logical importance of establishing periodic overhauls of the adult population may be expected to be more widely recognized and acted on, as in this way the causes of early disorders may be removed and so the sequence of serious results prevented. If and when periodic overhauls, twice or three times a year, become recognized in much the same light as a visit to the dentist is now, a fresh line of work allied to insurance practice will be opened up. Police surgeoncies and appointments to big business firms, to look after their staff, again are nearly always part-time occupations; but in the future it is probable that industrial medicine will bulk more largely than it does at present, and provide more berths for medical men who will devote their whole time to this branch of work, which provides much opportunity for interesting investigation. A good example of this is the recent recognition of squamous-celled carcinoma, usually of the scrotum, among the "mule spinners" or cotton operatives, who during their work lubricate with a mineral oil the spindles of the spinning mules. The Home Office's Departmental Committee Report (1926) records 539 cases (450 of the scrotum).

Temperament or circumstance will no doubt largely determine the choice of general practice in preference to entrance into the fighting or other service or taking up consulting or some special line of practice. Many men are individualistic, and prefer to be their own masters rather than to be under official control. A love of country life, and the human interest in getting to know their patients from the cradle to the grave, may make a man decide to devote his life to a labour bringing with it more love and respect than wealth or professional reputation. Heredity in the form of a father's practice awaiting him may make it a natural means of following the line of least resistance to tread in the paternal footsteps. I know medical families of seven generations in England and in Scotland; Georges Clemenceau, ex-Premier of France, was the seventh medical member in lineal descent of a family which practised the healing art for three hundred years without a break; and America can boast of the Porter family of eight generations of doctors from 1654 (Browning). There are other reasons, and among them desire to be married is not an unknown factor, for starting in general practice. The mention of marriage, in which haste is not essential to ensure happiness, recalls the business marriage or partnership, which also has its pitfalls as well as its advantages. It should not be entered into without due consideration and careful inquiry, and, as Mr. W. E. Hempson (out of the fullness of his experience of many partnership disputes referred to him) has said, a preliminary courtship, such as an assistantship with this further relationship in view, is eminently desirable.

With the changes time has brought about, men in general practice, who become the guide, philosopher, and ultimately familiar friend of their patients whom they bring into and see out of the world, have also changed, for their medical education and general equipment have greatly improved. They have thus become less dependent on the help of specialists and consultants, with whom to some extent they therefore compete. It has been thought by some that eventually general practitioners will become squeezed out by specialists and consultants on the one hand, and on the other hand by preventive and social medicine—such as school, tuberculosis, and venereal clinics, and maternity and child welfare centres. But the general practitioner is the essential element in the medical service, and his elimination would be a most serious loss. Just as they have altered in the past, so should they accommodate themselves to changing conditions, to a larger measure of team work, to a greater share in preventive medicine, and to a responsible part in public health organization.

A general practitioner has to possess a knowledge of every branch of medicine, in fact to be in miniature an all-round specialist, with the proviso that he also knows his limitations—what he can safely do and what he should leave to others; for in these days, with the great and ever-increasing complexity of medicine a real all-round specialist is of course impossible. This difficulty has to some extent been met by team work; firms of general practitioners so constitute themselves as to cover the ground of the various branches of medicine, surgery, and gynaecology more or less completely, each partner devoting himself to some particular line of work. Thus, in choosing a new partner, consideration is given to applicants with such qualifications as a special surgical or even radiological bent, and the existing partners may from time to time take post-graduate courses so as to become recognized locally as experts in diseases of the throat or eye, urology, and so forth. It is thus possible for a general practitioner to develop into an expert specialist and eventually to set up in a big centre; indeed, his all-round knowledge of the whole art of medicine is a very valuable asset to him as a specialist.

Lay Medicine and Medical Cults.

In the sphere of everyday medicine, especially in that conducted by general practitioners, the competition of amateur doctors and numerous cults or stunts has always played and, unless human nature alters in an unexampled manner, always will take a prominent part, which must be accepted in a philosophic spirit. A fundamental principle of preventive medicine is education of the public in personal hygiene, and this may lead to the acquisition of that small amount of knowledge which is proverbially dangerous, and may encourage treatment not only of self but of dependants and friends. As many persons, acting on the assumption that forty years of life make an individual either a physician or a fool, are convinced that they are as good as, or better than, doctors, a considerable amount of rather irresponsible treatment—in other words, a more advanced grade of domestic medicine—is likely to result. It must be remembered that such lay medicine is largely the outcome of past medical opinion or advice, and so up to a certain point is often sound. From such domestic medical practice it is but a step to an addiction to patent proprietary potions and pills, with which, as proved by their widespread advertisements, so many people dose themselves and others so freely and sometimes not too wisely. But just as the lay public are not justified in believing that a patent medicine taken under their own direction is necessarily an infallible panacea for what they think they are suffering from, so it would be unwise for the medical profession to jump to the opposite conclusion that they are all useless or worse. Proprietary medicines are sometimes derived from physicians' prescriptions for combinations of drugs proved by experience to be specially effective; some, indeed, such as chlorodyne and James's fever powder, have been copied in the *British Pharmacopoeia*. When the composition of a patent medicine is known—and it will be advantageous when a note of their composition on the label is legally enforced—there is ground to show whether or not it should be prescribed.

The cults of medicine, such as homoeopathy, Christian science, osteopathy, and chiropractic, are fashions, and the successors of others that have had their day and ceased to be remembered, such as Perkins's "metallic tractors," which had a great vogue at the beginning of the last century for drawing out disease from the body. But orthodox medicine also has its fashions, such as indiscriminate bleeding, salivation, and setons; it is always wise to find out if there is any germ of good in every new thing, however much it may be boomed and advertised. What in one generation is regarded as the obsession of a crank, such as the open-air treatment of tuberculosis by Dr. G. Bodington of Sutton Coldfield, Warwickshire, in 1840, may subsequently become recognized as a valuable form of treatment; in the past useful hints have been obtained from bone-setters, and manipulative surgery, which is part of orthopaedics, may embody some of the methods of osteopaths. The success which sometimes follows much-vaunted cures, especially when attended by great pomp and circumstance, such as touching for the king's evil, the séances of Count A. Cagliostro (1745-1795), and those of F. A. Mesmer (1733-1815) with his magnetic cabinet, which seems to have been reincarnated in Albert Abrams's box, and many modern fashions, is chiefly due to the impression made on the imagination or to "suggestion"; as Oliver Wendell Holmes said, "So long as the body is affected through the mind no audacious device, even of the most manifestly dishonest character, can fail of producing

how long a history is occasionally elicited in cases of glioma. On the other hand, a benign tumour may for years cause no symptoms which attract attention, and then rapidly make its presence manifest by causing some vascular or other change in its neighbourhood.

The situation of the tumour affords some help towards predicting its nature. Thus, tumours of the cerebral hemispheres are rarely any but gliomata or endotheliomata. In the frontal and post-central regions gliomata are twice as common as endotheliomata, in the occipital lobe six times as common, and in the temporal lobe thirteen times as common. Cerebellar tumours, on the other hand, are almost invariably gliomata; cerebello-pontine tumours are mostly neuro-fibromata; and pituitary tumours are most commonly adenomata.

Lesions other than true neoplasms which cause symptoms indistinguishable from those of tumour, such as localized syphilitic and tuberculous masses, chronic abscesses, and hydatid cysts, are all rare, and when they do occur there is usually some point in the history, or in the state of the cerebro-spinal fluid, to afford a clue as to their nature.

Let me now briefly consider the four groups of intracranial tumour which are most commonly met with.

1. *The Gliomata.*

Unfortunately the great majority of cerebral tumours are of a malignant character—malignant, that is to say, by reason of their progressive and infiltrating growth. They never produce metastatic deposits, nor do they ever spread beyond the limits of the brain itself. In my own experience, leaving aside cerebello-pontine and pituitary neoplasms, the gliomata constitute nearly 80 per cent. of the total number of intracranial tumours.

It has long been recognized that these growths vary greatly in their degree of malignancy, and that they can be grouped according to their gross structure and clinical course. There are, for example, those which undergo complete cystic degeneration, leaving little if any recognizable tumour tissue, and with no infiltration of the surrounding brain. Others are firm, solid, circumscribed, though not encapsuled tumours, sometimes capable of complete removal. These are cases eminently suitable for radical surgical treatment, and are to be clearly distinguished from the more common rapidly growing and infiltrating kinds for which palliative measures alone are available.

Recently Bailey, working in Cushing's clinic, has made a most valuable contribution to our knowledge of these tumours from the histological aspect, recognizing some fifteen different varieties with histological features corresponding in a suggestive manner with their clinical behaviour. It is, however, only by exploratory operation that the various kinds can be differentiated, so that anyone who refrains from giving his patient such chance as surgery affords may deprive him of his sole hope of relief. I cannot give here detailed statistics, but will summarize as briefly as possible the results of some 300 operations for glioma, so as to give a general idea of what my own experience leads me to expect from surgical intervention. In most cases the operation was that of simple decompression, but in many instances it included also partial or seemingly complete removal of solid tumours, or emptying of gliomatous cysts. In about twenty cases radium also was employed—50 to 100 mg. for twenty-four hours. About 25 per cent. of patients with *cerebral* gliomata die shortly after operation, and about 50 per cent. die within eight months. About 25 per cent., however, make good recoveries, and some have been able for several years to lead useful lives and to earn their living.

With *cerebellar* gliomata the results are somewhat better. The operative mortality is less than half that of the cerebral gliomata—28 per cent. are alive and well at an average period of three years after the operation, whilst the average survival period of the remainder is thirteen months. To show how well worth while it may be to give these unfortunate patients the chance of benefit which operation offers, I would like very briefly to mention three cases.

1. A man, aged 47. Partial removal of a cerebellar glioma five years ago; recrudescence of symptoms four months later; removal of a further mass of growth, and insertion for twenty-four hours of 60 mg. of radium. To-day he is well and able to work, with no bulge and very little sign of cerebellar disturbance.

2. A man, aged 27. Evacuation of cerebellar gliomatous cyst sixteen years ago. To-day he is well, at work, and married.

3. A man, aged 19, with severe cerebellar symptoms. Evacuation of a gliomatous cyst containing 2 ounces of fluid. Six years later he writes: "I feel fit in every way. The swelling at the back of my head has completely gone. My occupation keeps me out of doors most of the day in all weathers. I often go for ten or fifteen-mile tramps, and have recently returned from a cycling tour of 250 miles, so I think I must be pretty fair."

2. *The Endotheliomata.*

These are benign, encapsulated tumours of remarkably slow growth, arising from the cells of the arachnoidal tufts which are concerned with the absorption of cerebro-spinal fluid. They never invade the brain, but occupy cup-like depressions from which they can easily be enucleated. Complete removal, however, entails the excision of the overlying dura mater to which the tumour is attached, and this cannot always be done with safety on account of the proximity of the great venous sinuses in the immediate neighbourhood of which these tumours are most commonly found. They are, unfortunately, far less common than gliomata; in my own experience of some 400 operations for tumour of the cerebral hemispheres the proportion was as two to seven. Of this number only 75 per cent. could be completely removed, and of these nearly 50 per cent. made good recoveries and are alive and well at the present time. The patients who recovered fall into two classes: first, those who are restored to their normal lives and occupations without any neurological defect (22 per cent.); secondly, those who remain to a greater or lesser extent neurologically imperfect owing to various degrees of palsy or fits (38 per cent.). Of those patients in this series who are still alive and well, two were operated upon seventeen years ago, three eleven years ago, and the rest between four and seven years ago. The operative mortality is high, and compares unfavourably, in my own experience, with that of the gliomata. This is partly due to the fact that the operation is necessarily more severe, and partly because I have included all my earliest cases, when the operative technique was comparatively crude and ill developed, when localization was less accurate, and when enucleations were often mistakenly carried out in the presence of a greatly raised intracranial pressure.

3. *Cerebello-pontine or Extra-cerebellar Tumours.*

Of these tumours 90 per cent. are neuro-fibromata. They are usually firm, solid, encapsuled tumours, but are sometimes quite soft and may even be completely cystic. Arising from the eighth nerve just within the internal auditory meatus, they enlarge that orifice, sometimes to a remarkable degree, and on complete specimens of such tumours there can usually be seen a nipple-like projection which has occupied the meatus. For a long while, perhaps for many years, deafness and noises in the head may have been the only symptoms complained of, and sometimes the deafness is only discovered accidentally when it is already complete. By Bárány's tests the functional state of the vestibular nerve can be ascertained with precision, and these tests are positive at an early stage in the course of growth of an auditory nerve tumour. Very often the corneal reflex of the same side is diminished or absent, and this is so frequently the case that the corneal reflex, as well as the vestibular functions, should be tested in all cases of nerve deafness, as the coexistence of these signs would, even in the absence of all other symptoms, be sufficient to suggest the presence of one of these tumours. As the growth enlarges other cranial nerves become involved, and symptoms of disturbance of cerebellar function appear. Sooner or later the tumour compressing the pons and medulla blocks the aqueduct of Sylvius, and ventricular distension results. Then appear the classical symptoms of cerebral tumour—the headache, vomiting, and papilloedema. When this stage of general increase of intracranial pressure is reached operation becomes at once more difficult and more dangerous, and the outlook more grave.

It would naturally be expected that these tumours—benign, encapsuled, capable of early and accurate diagnosis, and easily accessible to the surgeon—would constitute the most favourable form of intracranial tumour for complete removal. This, however, is not, in practice, the case, for their position in relation to the medulla and its blood

technical skill in operating has been enabled, by the discoveries of anaesthesia and antiseptic and aseptic methods, to become most successful in combating disease in all parts of the body, especially cancer and acute inflammation in the abdominal organs. But in populous centres surgeons are largely concentrating their activities in some special direction, such as the abdomen, malignant disease of the breast, or surgery of the brain. Of the two great, if artificial, divisions of the healing art, pure medicine and surgery, the second is naturally the more attractive, for the benefits wrought by operation are much more obvious and spectacular than those in a physician's practice. The operating surgeon has invaded, and with good justification, realms of disease formerly regarded as sacrosanct to the physician, and the rewards are much greater; thus gynaecology in its advance has become surgical, and much of the treatment of digestive disorders is on operative lines. A budding gynaecologist should now be a Fellow of the Royal College of Surgeons. Time was when the physician was paramount, but now there are not wanting definitions of a surgeon which point to his supremacy, such as "A surgeon is a physician who can use his hands"; "A surgeon is a physician and something more"; and perhaps the arresting, if somewhat intriguing, auto-definition of the distinguished President of the Royal College of Surgeons, "A physician doomed to the practice of surgery." The financial rewards are much greater and begin earlier than in the physician's earthly course; but, on the other hand, a surgeon's flood of activity ebbs sooner, and the wear and tear of a surgeon's exacting life are much greater than in the case of his medical brother. Writing last year about this subject, as illustrated by the staff of the Manchester Royal Infirmary in 1900, Mr. A. H. Burgess pointed out that the death rate on the surgical side was nearly five times higher than among the physicians. This may be an exceptional instance, but the risks run by a surgeon from infection and overstrain cannot be doubted by anyone who follows Mr. Burgess's example of analysing now the composition of hospital staffs as existing a quarter of a century ago. Forty or fifty years ago the best men flocked to the medical side of a teaching hospital, and I remember a waiting list of twenty possible candidates for the post of assistant physician at St. Bartholomew's Hospital. It is very different now.

But before a decision is made on the question to be or not to be a surgeon, it may not be unwise to consider the possibility of another swing of the pendulum. Since the war general practitioners, as a result of their experience abroad, have done much more of their own surgery than before; and, as already mentioned, team work or group organization in which one partner in a firm of practitioners devotes himself to surgery has come in, and is likely to increase. The future of the general surgeon is a matter for careful consideration by those who are thinking of reaping a harvest twenty years hence. The various specialties—laryngology and otology, and proctology (which tend to spread from the orifices further into the alimentary canal), orthopaedics, genito-urinary and venereal diseases—have narrowed the former vista of the general surgeon. Further, if, as is within the bounds of imagination, discoveries, such as that of Gye and Barnard, lead to the prevention and cure of cancer, and the immunology of the future to the prevention of inflammation of the vermiform appendix, gall bladder, and other forms of inflammatory abdominal disease, the activities of the operating surgeon would be greatly curtailed, and little more than accidents and deformities would remain.

The distinction between physicians and surgeons is artificial in principle, for it depends on the possession of the technique to carry out one kind of the proper (surgical) treatment completely. It would be in the patient's and the medical man's interest and to their advantage if the diagnosis and treatment—whatever it might be, drug or operation—were carried out by the same person. Thus a neurologist should be equally capable both to diagnose and to remove a cerebral tumour, as indeed some now classed as surgeons are; there would thus be analogous thoracic and abdominal experts, following, indeed, the practice of the already fully recognized specialties, such as ophthalmologists, laryngologists and otologists, and gynaecologists.

There is a last piece of advice that I would venture to give to the young consultant in the early stage when he has to "learn to labour and to wait," and, being anxious about his future, is naturally afraid of missing any step on the ladder. It is to utilize a year or so at the beginning of the waiting period, when the mind is elastic and fertile in ideas, to do some work of permanent value. So often a man seizes the opportunity of gaining an assistant physiciancy or assistant surgeoncy at a hospital without a medical school and becomes a slave to seeing out-patients in an unprofitable race against the clock, when by spending the same time in experimental research he would establish a claim to a better appointment, even though he may appear to be somewhat later in the start of the race with his peers.

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, NOTTINGHAM, 1926.

SECTION OF SURGERY.

Sir D'Arcy Power, K.B.E., M.B., F.R.C.S., President.

DISCUSSION ON CEREBRAL TUMOURS.

OPENING PAPERS.

I.—PERCY SARGENT, C.M.G., D.S.O., F.R.C.S.,

Surgeon to St. Thomas's Hospital.

Twenty years ago Victor Horsley addressed the seventy-fourth Annual Meeting of the British Medical Association upon the technique of operations on the central nervous system. This address is remarkable chiefly for the fact that much of it, if read to-day, would, except perhaps to those who happen to be brought frequently into contact with cases of cerebral tumour, appear fresh and novel; not because the surgery of the brain has stood still, but because Horsley was so far ahead of his time in this field.

Horsley constantly insisted that surgery must not be regarded, as even to-day it is in some measure regarded, as a *dernier ressort*. He condemned what was known as "expectant treatment" in terms so characteristic that I cannot refrain from making a brief quotation from an address which he delivered in Berlin in 1910.

> "A few years ago," he said, "all, and even now most, cases of intracranial tumour died without really receiving any treatment at all, for, since no drug is known to have any influence on neoplastic tissues, the classical administration of potassium iodide is merely a ritual. . . . By a singular cynicism, the origin of which I cannot trace further, the unfortunate sufferer from intracranial tumour is commonly said to receive 'expectant treatment.' Considering that in the absence of any active surgical treatment the only thing to be expected is death, the term 'expectant treatment' has always to my mind carried with it its own condemnation for inhumanity."

In opening this discussion may I express a hope that it may not be wholly or even chiefly devoted to the mere technique of craniotomy, but that it may bear upon the question of our responsibility towards patients with intracranial tumour, and how far our attitude may have been modified by the experiences and advances of the past twenty years. Starting from the fact that a cerebral tumour will, if left alone, ultimately prove fatal, and that no drug and no method of actinotherapy has as yet been found to have any curative effect, it follows that at the present time the patient can look to surgery alone for a possibility of cure, or even of relief from his sufferings. There are, of course, cases of intracranial disease, the symptoms of which may closely resemble those of cerebral tumour, but the diagnostic methods of to-day are such that errors but rarely arise. Further, it is in most cases possible to predict, not only the exact situation, but also the probable nature of the tumour. In this respect some, but not too much, importance is to be attached to the length of history as distinguishing benign from malignant tumours. A history extending over several years naturally suggests that the tumour is an innocent one, but it is surprising

and into the centre of this is screwed a pin which forces it open and locks it into place. The lever is now dropped over the pin and held in place by a nut, the carriage is adjusted to the correct radius, and the cutting tool is advanced until it just projects from its housing. It will now be found that on swinging the lever round its fixed fulcrum the skull can be cut with astonishing facility and without the slightest suspicion of violence. The cuts are taken in long sweeps, omitting the base of the flap, which is always so arranged that the skull at this point is thin. After each cut the tool is advanced a fraction of a millimetre, and another cut is taken. In a remarkably short space of time it will be found that the thinner parts of the skull have been penetrated, and the cutting is now limited to the thicker part, where hard bone can still be felt at the bottom of the slot. The form of the tool precludes any possibility of injuring the dura, but as soon as the seeker shows that the dura has been reached, these parts of the incision will naturally be left alone. The bone is by this means completely divided over three-quarters of a circle, and two flat steel levers are now inserted into the slot which has been formed. Very slight pressure on these levers is required to crack the thin base of the bony flap, which is now turned down still attached to the soft parts, usually formed by the temporal muscle. The tool is set at such an angle that the margin of the bone flap is bevelled, and therefore when the latter is replaced it lies snugly in position against the corresponding bevel of the skull itself. I know of no other method by means of which such accurate and firm coaptation can be obtained.

There is no instrumental limit to the size of the bone flap which may be formed, and a bony disc six inches in diameter can quite easily be turned down in the temporal region. For most operative work, however, a flap of from three to four inches in diameter will be sufficient. One of the most remarkable features of the instrument is the rapidity with which these large flaps may be formed; the average time taken for cutting the bone has in my own experience varied from two to two and a half minutes. The tendency of modern cerebral surgery is to explore the brain through very large openings, usually situated either in the temporal or the occipital region. It is for the first of these that the instrument has been devised, and although it may be applied to other regions, it is in the temporal region that its peculiar value appears.

There is one point in the use of the appliance to which I ought to refer—namely, the cutting of the trephine hole. This has to be done with great accuracy, and I employ for the purpose a special form of trephine which differs in many respects from that in common use. In the first place it is mounted in a large brace so that it can be operated rapidly and without fatigue. In the second place, the centre on which it turns screws down; it is never removed, but is gradually withdrawn by means of a screw as the trephine advances through the bone. As the trephine is cylindrical the possibility of plunging has to be guarded against, and it is therefore surrounded by a collar running on a screw thread on its outer surface. The collar is always so adjusted as not quite to touch the bone. Quite apart from its use in connexion with the craniotome, this form of trephine with the receding centre presents very great advantages over the old-fashioned instrument, for, turning as it does upon a firmly planted centre, it can be so applied as to cut obliquely through the outer table of the skull and to arrive absolutely flush at the inner surface, even where the inner and outer surfaces are not parallel.

III.—A. P. BERTWISTLE, M.B., Ch.B.Leeds, F.R.C.S.Ed.

LOCALIZATION BY *X* RAYS.

The purposes of this paper are to give a brief outline of the researches on which our knowledge of the functions of the cerebral cortex is founded, and to describe a method which renders it possible to determine the position of a cranial defect and to trephine more nearly over the centre of a tumour when its position has been determined by the symptoms present.

Previous Researches.

Our knowledge of cortical functions rests on the following:

1. *Anatomical Considerations.*

Gennari's discovery on February 2nd, 1776, of the "lineola albidior admonum eleganter"—the line which still bears his name—marked the dawn of research on these lines. Work has been done on cells and tracts.

Cells.—For the lower functions of the cortex, such as sensation and motion, this method stands without rival. Campbell has shown that the histology of the precentral gyrus was in accordance with pathological finding, and that the visuo-sensory area and post-central gyrus were sharply demarcated. He made equally important observations on the intermediate precentral and superior temporal gyri.

Tracts.—These may be studied by serial sections of the white matter or by the myelination method of Flechsig, who grouped the fibres into primordial, intermediate, and terminal, the last being characteristically human. Campbell found this method very useful for the visuo-sensory area, but even its originator found it subject to modifications and reservations.

2. *Post-mortem Evidence.*

At times this has yielded valuable results. The symptoms have been recorded and the position of the lesion in the cortex discovered at autopsy. Material falls under the following headings:

(*a*) *Trauma.*—Whilst eminently suitable for study during life traumatic cases are of doubtful value after death, as the injury is so severe that the white matter, or even the basal ganglia, may have suffered.

(*b*) *Cerebral Haemorrhage.*—This includes softening, which usually results from the haemorrhage. Here again the injury is too extensive for accurate investigations. Campbell investigated 200 of these cases, and came to the conclusion that destruction of the cortex without injury to the underlying fibres must be of extreme rarity, so that safe judgement can seldom be given.

(*c*) *Post-amputation Changes.*—The microscopic examination of the brains of patients who have undergone removal of a limb is in a different category. Campbell writes:

> "As a result, either of section of the fibres with which they are connected, or of suppression of the energy they elaborate, the cortical motor cells controlling muscles in the amputated limb undergo a change described by Marinesco as 'réaction à distance,' and from a careful examination of the distribution of these changes, important results are forthcoming."

The cells become globose and faintly staining before disappearing. This alteration is best seen about two years after the operation, since changes are then limited to the cells presiding over the amputated muscles. Later, atrophy is seen in the cells presiding over muscles immediately proximal to the amputation. The change is akin to Wallerian degeneration, but occurs much later, as would be expected from the greater number of neurons to be traversed. Among this group must be placed an instructive case reported by Shaw Bolton, in which he examined the calcarine region in a man who had had optic atrophy for many years.

(*d*) *Tumours.*—Autopsies on cases of cortical tumours are of very doubtful value. Cortical tumours cause death by interfering with the intracranial tension and circulation of the cerebro-spinal fluid, which only occurs at the terminal stage. The interference with intracranial tension may have been in itself responsible for the symptoms, especially if the higher functions were involved. The same can be said of abscess, the effect of which is too diffuse for accurate work. Cysts and granulomata, when single, are comparatively rare, but are of considerable value, especially when small.

(*e*) *Meningitis.*—On rare occasions meningitis has yielded information.

(*f*) *Localized degeneration* by amyotrophic lateral sclerosis, when presenting symptoms during life, has at death been found to show, histologically, localized degeneration of areas of the brain. Campbell writes:

> "Natural lesions such as cerebral softening, tumour, and trauma, which form the basis of most of the clinical observations, are only in rare instances limited in their effects to allow of safe judgement."

vessels renders their removal exceedingly hazardous. A series of lamentable disasters (only one survival out of nine) led me to abandon the operation of enucleation and to adopt the method of removing as much as possible of the tumour tissue from within the capsule by fragmentation and suction. The operative mortality has fallen to 14 per cent., and the results in the remainder have for the most part been very satisfactory.

4. *Pituitary Tumours.*

These cases have to be divided into two groups. (1) Pituitary tumours proper, mostly adenomata, arising in the sella turcica and invading the cranial cavity. Of these there have been thirty-four cases with nine deaths, the majority of the fatalities having naturally occurred amongst the earlier operations. This series includes four transphenoidal operations with one death, and thirty transfrontal operations with eight deaths. I was at one time fortunate enough to have a run of fifteen cases without a fatality. (2) Suprapituitary tumours, arising above or in close relation with the sella, including infundibular, interpeduncular, and frontal lobe tumours and cysts of various kinds. Amongst these there have been six temporal operations with one death and twenty-nine transfrontal operations with three deaths.

While it is a comparatively simple matter to indicate statistically the results of this or any other operation as regards immediate mortality, it is not easy to set out in any such precise manner the far more important results which concern the condition of those who emerge successfully from such operations. Judged first from the point of view of visual disturbance—the outstanding symptom for which, at present, pituitary operations are generally performed—the gain has in practice proved to be such as greatly to outweigh the operative risks, and it is quite certain that when these cases are submitted to operation at an earlier period, before the power of recovery of the visual paths has been seriously impaired, the results as regards vision will be still more gratifying. It is for the ophthalmic surgeon, more than anyone else, to make himself acquainted with the progress and possibilities of pituitary surgery, for it is chiefly to him that these patients entrust themselves for advice and treatment. Judged from the point of view of comfort, the relief of pressure afforded by these operations results in freedom from headache and often an improved mentality. The patients become brighter, more alert, and better able to carry on their occupations. It is too early to say anything as to the effects from a standpoint of endocrine function. There have in a few instances been rapid and definite alterations in the metabolic and other disturbances, but how far these may be but transitory is not at present known. They are, however, such as to suggest that, with the increasing safety of the operation, it may come within the scope of legitimate surgery to operate for the arrest of acromegaly in its early stages.

The further improvement in outlook for the sufferers from cerebral tumour which is so greatly to be desired lies partly, of course, in perfection of surgical technique, but even more in earlier diagnosis and more accurate localization. The onset of the classical symptoms of cerebral tumour—headache, vomiting, and papilloedema—should be regarded as marking the commencement of the terminal stage, and it is of vital importance that surgical intervention should take place before the general intracranial pressure has become conspicuously raised, for there is no single factor which so dominates the situation, and upon which success or failure so definitely depends. Although it is true that symptoms may develop rapidly in some cases owing to changes such as haemorrhage and oedema in and around a tumour, the growth of the tumour itself, even with most cases of glioma, is remarkably slow. This is amply proved by a minute inquiry into the history of a large number of cases. Any disturbance of cerebral function, whether in the direction of overaction or defect, especially when of a persistent and progressive character, should stimulate a most searching investigation into the history and lead to the minutest and most thorough neurological examination. It is surprising to find in how many cases the history shows that some slight disorder of cerebral function has been present for many months or years, and this is true even with some of the gliomata. The largest tumour which I have yet removed, an endothelioma weighing 6½ ounces, came from the brain of a man who had been known to have hemianopia for two years, whose discs were normal, and who had never had a headache.

Horsley went so far, sixteen years ago, as to lay down two propositions: first, that "every case of focalized epilepsy not definitely proved to be idiopathic in origin must be treated by exploratory operation"; and secondly, that "every case of progressive motor or sensory paralysis of intracranial origin must be treated by exploratory operation." Since that time so much has been learnt regarding localization of function, the significance of slight departures from the normal, especially as regards sensation and the special senses, and also as regards the meaning of changes in the pressure and constitution of the cerebro-spinal fluid, that operations upon the brain are becoming less frequently exploratory, and are more often planned with the definite object of carrying out the appropriate attack upon a tumour the situation and nature of which have been confidently diagnosed beforehand. But in the main the propositions which Horsley laid down stand, and should at least occasion serious thought.

II.—H. S. SOUTTAR, C.B.E., M.Ch., F.R.C.S.,

Surgeon to the London Hospital.

A New Form of Craniotome for Opening the Skull.

In the surgical treatment of cerebral tumours the first problem presented to the surgeon is that of opening the skull, and it cannot be denied that the methods at present available for this purpose leave much to be desired. In general terms three methods are in common use. In the first a series of trephine holes are made through the skull along the intended line of section, and these are joined by means of some variety of cutting forceps; in the second a Gigli saw is substituted for the forceps; for the third method a powerful electric motor is necessary, and the procedure consists in drilling a series of holes and joining these up either by means of a circular saw or some form of burr electrically driven. The first two methods are certainly primitive, and they demand a degree of exertion on the part of the surgeon which is detrimental to his manual skill when he comes to deal with the brain itself. The third method is effective, but it involves very serious trauma to the patient, and the cumbrous appliances involved limit its use to large institutions where these can be provided and kept in working order.

I am venturing to place before you a method of an entirely different nature, by means of which the skull can be divided by the exclusive use of hand tools with great facility, and with so little violence as to be easily accomplished in the conscious patient under local anaesthesia. The method is specially designed for the formation of large osteoplastic flaps, and it enables the surgeon to form these with a facility, a rapidity, and a precision unattainable by any other method.

The instrument consists essentially of a stud and a lever. By means of a locking device the stud is securely fixed in a trephine hole previously cut at the centre of the proposed bone flap. Around this can turn a long lever on which slides an adjustable carriage carrying a cutting chisel, which closely resembles the parting tool used in turning. This tool can be advanced from a socket, which supports it, by means of a screw, so that the depth of the cut can be adjusted with the nicest accuracy. The method of procedure is as follows:

A very large flap consisting of scalp only is turned down. It must be so large as to overlap by fully half an inch the furthest limits of the bone flap which is to be formed. As there is no anastomosis whatever between the vessels of the scalp and of the bone, the turning down of the scalp does not interfere in the slightest with the vitality of the bone, whilst it greatly facilitates access to the latter. At the centre of the projected bone flap the muscle and pericranium are divided and drawn aside, and a trephine hole is cut with a special brace. Into this trephine hole is inserted a split stud resembling an expanding mandrel,

(0.75 metre) from the head, and the rays were centred on the point 00.

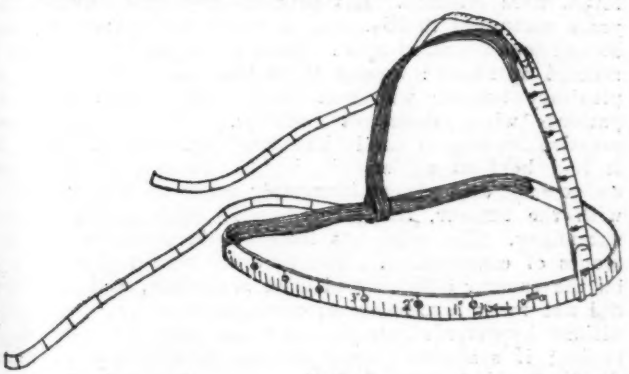
The curvature of the head renders only the central area available for accurate localization; it represents an area of about 16 sq. in. (100 sq. cm.). This limitation precludes study on the occipital region. The key is of the greatest value for the supramarginal, angular, superior temporal, and pre- and post-Rolandic convolutions, all of which have been insufficiently charted in man.

The Gyrometer.

To localize the brain underlying a cranial gap the following measurements are necessary:

1. The point at which a vertical dropped from the centre of the gap cuts the base-line.
2. The vertical height of this line.
3. Dimensions of gap.
4. Circumference of the head on a line drawn through the glabella and external occipital protuberance. This will be referred to as the G.O. or base-line.
5. Breadth of head in the line of the above vertical.

For routine work 1, 2, and 3 are all that are required, the distances being transferred directly to a dolichocephalic or brachycephalic key, whichever type of skull the patient possesses. Messrs. Arnold have made a simple, inexpensive instrument for measuring these distances and for preserving a radiographic record; it may be called a gyrometer, in that it indirectly measures gyri. The instrument is composed of a thin strip of celluloid half an inch wide with inch graduations and 0.2 inch subdivisions (0.5 cm.). The central point was marked zero. The



ends of the strip are united by a piece of elastic which serves to keep the celluloid in close apposition to the head. The celluloid and elastic form the base-line on the patient's head. The celluloid strip is provided with a cursor of similar material marked from 0 to 4 in. (10 cm.), which slides along it at right angles. A piece of elastic connects the free end of the cursor with the elastic part of the base-line in such a way that it can move with the former. The elastics are provided with tapes whose inches continue those of the celluloid strips; by this means the circumference of the head in the G.O. line, and its breadth at any point, can be easily read off. For radiographic purposes the strips are studded with lead rivets at intervals of an inch, the central one being square to distinguish it from the others.

After combing the hair suitably and possibly wetting it, the gyrometer is applied to the patient's head in such a way that the main strip passes from the glabella above the root of the pinna to the external occipital protuberances with its centre midway between these points; this strip and its elastic thus form the base-line. The cursor is adjusted to pass over the centre of the defect. The distance of the cursor from the central point 00 is read off, and the height of the centre of the depression above the base-line. The circumference of the head and the breadth along the line of the cursor are recorded on the tapes, and the diameter of the gap is measured. To preserve a record, a radiograph is now taken with the following precautions to prevent distortion: (1) The tube is at least 2½ ft. (0.75 metre) from the patient's head; (2) the rays are centred on the central rivet; (3) a purely lateral radiograph is taken as shown by the line of dots being straight. If such measures are not taken the strangest effects are produced.

Since heads vary greatly in length and breadth these must be allowed for. Length is much the more important, and must be corrected for, before the breadth. There is only one horizontal constant for length, and that is:

$$1.\quad \frac{\text{Circumference of head in G.O. line of key}}{\text{Circumference of head in G.O. line of patient}}$$

When the distance of the cursor from the centre has been multiplied by this constant the corrected length (*a*) is marked on the key. The breadth of the skull varies at different points along the G.O. line, and is found by measuring the distance between the elastic and celluloid parts of the base-line along the line of the cursor. The breadth constant is:

$$2.\quad \frac{\text{Breadth of skull at point } (a) \text{ on key}}{\text{Breadth of skull at point } (a) \text{ on patient}}$$

After determining this constant the height of the centre of the gap above the point (*a*) is recorded on the key and the area of the defect plotted out. (Mr. Mason has had prepared a number of prints of the key radiograph so that the corrected measurements can be transferred direct to it without the need of radiographing the patient's skull.)

The accuracy of the method was tested on cadavers as follows:

First, a number of match-stalks were sharpened and dyed. The centres of six important gyri were chosen—namely, the pars triangularis, lower part and junction of lower third and upper two-thirds of pre-Rolandic gyrus, superior temporal, marginal, and angular gyri. The gyrometer having been placed in position on the cadaver's head, the constants for the breadth and length were determined. The heights of each of these gyri and the distance from the zero point at which their perpendiculars cut the base-line were measured on the key and corrected by multiplying by the constants. The points thus determined by the skull were marked on the scalp of the cadaver, and in these positions the skull was drilled with a gimlet and a coloured match-stalk inserted until it entered the brain. The process was repeated on the other side. The brain was removed with the matches *in situ* and each was identified.

Thus in one case the circumference of the head was 24 in. As that of the key radiogram was 22.5 in. the constant for length was 24/22.5 = 1.075, or practically 1.1. The breadth of the head opposite the angular gyrus was 11.5 in. and the corresponding breadth on the head used for the key radiogram was 11 in. This gives a vertical constant at this point of 1.05, which can be taken as unity for practical purposes. The angular gyrus on the key is 2.8 in. behind the central point and 2.5 in. above the base-line.

Multiplying these figures by their respective constants one obtains a point 3.1 in. behind the zero point and 2.5 above the base-line. This point should be over the angular gyrus of the cadaver. In no case was the discrepancy more than a quarter of an inch, and this could easily be accounted for by the variation in the pattern of the convolutions.

Superimposition of Defects.

Whilst a single craniotomy opening is too large for accurate localization, by this method superimposition of several areas in cases presenting identical symptoms will enable us to narrow down the supposed lesion

Special Features.

1. Applicability to investigation of the unshaven head, the elastic serving to keep the gyrometer in close apposition to the head. Moreover, as has been stated, three-fourths of the base-line is hairless.
2. Ease with which the base-line is fixed.
3. The sharp picture of the cranial gap as shown by a radiogram as compared with the unconvincing results of a photograph.
4. Its suitability for the study of the much debated problem of the speech mechanism, since all the areas concerned—namely, the intermediate, precentral, supramarginal, and superior temporal convolutions—come within its limits.
5. Possibility of narrowing down the area affected by superimposition of several cases.

Clinical Material.

(*a*) Undoubtedly the best material for this method will be cases of depressed fractures. In the first place, the patients, whether civil or military, are healthy labourers or soldiers who have been injured at work or in the field. Their brains are not the nervous derelicts that Broca's cases were. Secondly, the injury is usually maximal on the surface, and therefore affects chiefly the grey matter and tends to be fairly localized. The war provided us with a mass of material; the men, as Head says, were intelligent and took great interest in their progress, unlike the nervous breakdowns one usually has to examine.

3. *Animal Experiments.*

The experimental researches of Sherrington and Grünbaum and Horsley are classical, as are those of the pioneers in this method—Hitzig and Fritsch (1870). The devices employed were ablation and faradic stimulation, Sherrington using the more accurate unipolar method. It is largely on these experiments that our knowledge of the human cortex has been founded. While invaluable in the study of such coarse functions as motion and sensation, they are quite unsuited to the investigation of the higher developments, such as thought and speech, which have no counterpart in animals. Even in the case of the motor area Horsley shows that its extent diminishes the higher we ascend in the animal scale. The analogy between the human brain and that of animals, even the ape's, has been pushed too far.

4. *Operation Findings.*

The case is one either of fracture, possibly depressed, or of tumour. Certain symptoms being manifest, a trephine opening is made and the area of brain exposed is identified. The extreme difficulty of identifying any gyri through a small opening of perhaps four square inches is at once obvious.

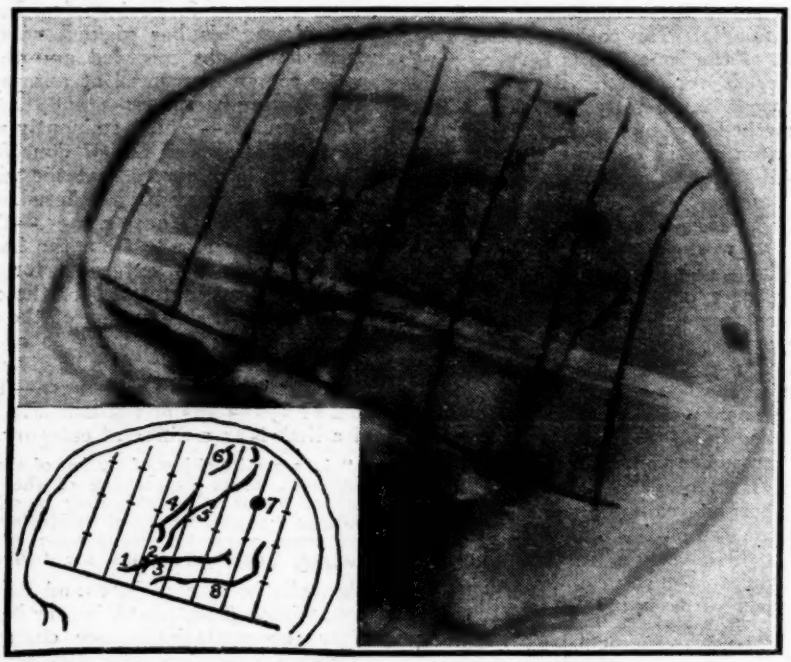
5. *Electrical Stimulation.*

This has been tried by faradic current in the conscious individual by Horsley and Cushing. Alfred Gordon, who used unipolar stimulation in two cases, writes:

> "The facts prove, I believe conclusively, that the results of faradization of the cortex cannot be considered as an absolutely reliable means for an exact and precise delimitation of the motor centre; the motor region is more extensive than faradization seems to prove."

Head expresses dissatisfaction thus:

> "Results of electrical stimulation of the cortex, more especially the motor area, no longer appeal to the more thoughtful investigators."



1, Anterior limb, Sylvian fissure. 2, Ascending limb. 3, Posterior limb. 4, Inferior precentral fissure. 5, Rolandic fissure. 6, Superior precentral fissure. 7, Interparietal fissure. 8, Superior temporal fissure.

6. *Post-operation Findings.*

These must of necessity furnish us with our best results; the cases can be examined under the best possible conditions and at regular intervals; yet it is here that we find least work has been done. In certain selected cases Head adopted the following method:

> "The head of a male body was selected which corresponded as nearly as possible in its measurement with that of the patient whose wound we intended to localize. The exact extent of the loss of bone was marked out on the scalp and holes were drilled through the skull to mark its dimensions. Through these a coloured fluid was passed with a small brush, to fix the relation of the bony opening to the surface of the brain. Then the skull cap was removed and a cast taken of its inner surface. This gave us a solid reproduction of the brain covered by its membranes, on which were indicated the limits of the external wound. The situation and course of the principal fissures was determined by careful dissection and drawn in the cast. Thus we finally obtained a record of the area occupied by the wound on the surface of the brain in relation to the main landmarks of cerebral topography."

The chief objections to this method are its tediousness and costliness, one cadaver being required for every two patients investigated. The second is the difficulty of fixing the interaural and nasion-inion lines—which are over the hairiest part of the scalp—for the purpose of taking measurements from them.

Author's Method.

The method to be described involves the use of a key radiogram, and a simple inexpensive instrument called a gyrometer.

Base-line.

The line chosen is almost horizontal, running from the glabella to the external occipital protuberance and passing just above the point where the pinna joins the scalp. While its origin and termination are not ideal, it possesses the unique advantage of being available for both clinical and radiological purposes. The line is much more readily fixed than a sagittal one, which would be quite unsuitable here, as it would be calibrated from the periphery, where the inches are least dependable. It is of importance that three-quarters of it in males is hairless, and they furnish the majority of depressed fractures. With the exception of the occipital pole, the rays are centred on the most important functional parts of the cortex. Should any shrinkage occur in the cadaver's brain it is minimal at the centre of this line. A small advantage is that ear-cones may be dispensed with, the line of rivets serving to determine whether the radiograph is a pure lateral one or not.

Preparation of the Key Radiogram.

A scale was prepared consisting of a strip of watch-spring, 7 in. (17.5 cm.) long, the ends of which were connected together by a piece of elastic. At intervals of an inch, seven strips of spring, 4 in. (10 cm.) long, were fastened at right angles to it, the central one being marked 00 inch. Holes an inch apart were made in the verticals, through which were threaded silver wires.

The head of a dissecting-room subject (aged 39) having been radiographed to make certain that there was no great brain shrinkage, the cerebrum was removed in the usual way and its membrane stripped off. A photograph was taken to indicate the type of brain being dealt with; fortunately, it proved to be particularly well hardened; the cerebral hemispheres weighed 41 oz. (1¼ kilos). A mixture of red lead and warm vaseline was now painted on the more important sulci and a second photograph obtained. The brain—covered with tissue paper to prevent dissemination of the opaque material—was replaced, the skull cap and scalp adjusted into position, and the scale fitted on the unshaven head. It passed from the glabella to the external occipital protuberance, lying just above the junction of the pinna and scalp. The circumference of the head in this line, which is known as the base-line, was 22½ in. (56.2 cm.). The scale having been adjusted until its central point 00 lay midway between the glabella and external occipital protuberance, the upright wires were placed at right angles to it and fixed by means of thread wound round the head. The breadth across the head along each vertical from base-line to base-line was measured. Only the central five gave a precise reading.

A pure lateral radiograph was now taken; that this lateral position was obtained is shown by the base-line being straight—any deviation causing a curve to appear convex upwards or downwards, as the case may be. The following precautions were taken: the tube was 2½ ft.

responsible for the diagnosis of the lesion and the decision as to its treatment.

With regard to the operation, he believed that an attempt at surgical relief with the possibility of cure should always be made, however desperate the case might at first appear, with the exception of certain tumours which could be accurately localized in inaccessible situations and cases of metastases in the brain. It was known that over 40 per cent. of cerebral tumours were gliomatous in nature, and of these comparatively few could be extirpated, even at the earliest period at which they could be diagnosed; it was clear that a very large proportion of advanced cases would prove to be hopeless whatever treatment was adopted. Nevertheless operative treatment was justified. When there was great intracranial tension an attempt should be made to lower the pressure within the skull before opening the dura, either by withdrawing the fluid from the lateral ventricle or from a cyst if present; by infusion of hypertonic saline solution; or, if these failed, by lumbar puncture, everything being in readiness to open the dura should untoward symptoms appear. When the tumour was beneath the tentorium it was necessary, and usually easy, to tap the lateral ventricle to relieve pressure, but when the tumour lay in the substance of one of the hemispheres the ventricle might be much diminished in size, greatly displaced, or completely obliterated, and it might be impossible to use this method. He believed it of great importance, when fluid was obtained by puncture of the brain, that it should be allowed to escape very slowly, for if it escaped rapidly and the tension were quickly reduced, the oedema which always resulted from this reduction in pressure was correspondingly greater in degree and extent. The cerebral oedema which followed decompression was believed to account for an appreciable post-operative mortality, and any measures which tended to prevent its occurrence should be carefully considered and practised. He instanced the case of a woman admitted to St. Bartholomew's Hospital in a semiconscious condition, where the diagnosis was only made exactly by skiagrams showing the shadow of the calcified pineal body displaced to the right side. The left side of the skull was explored, and an attempt was made to tap the lateral ventricle. This failed, but a gliomatous cyst was discovered in the region of the motor cortex and the fluid was evacuated. The dura was then opened with safety, but the tumour was irremovable. Some hours after operation the patient showed signs of cerebral compression, but these disappeared after an intravenous injection of 70 c.cm. of 15 per cent. sodium chloride. Her condition greatly improved, and she was later given a course of *x*-ray treatment, focused on the growth; the improvement was only temporary, however. The speaker hoped that advance might be made in the future towards more radical treatment of gliomas, and that the tumour might be removed without causing so much damage that, though the patient's life was saved, yet it was scarcely worth living. The control of haemorrhage presented great difficulty, and the operative procedures would often have to be divided up into several stages. Local anaesthesia could often be used with advantage, especially for the preliminary stages; rectal and subcutaneous saline infusion and blood transfusion during the operation would enable the patient to stand surgical treatment, which could not be attempted without such aid. A record of the blood pressure and pulse rate throughout the operation was taken. He had repeatedly seen the pulse become steadier and the blood pressure rise when the patient, during the course of an operation, was given a rest for a few minutes. Two important causes of death after operation were oedema and haemorrhage. Oedema was to be combated by minimizing the amount of trauma to which the cerebral tissue was exposed, and by making the process of reduction of intracranial tension as gradual as possible. Hypertonic saline solution was used to control symptoms of cerebral compression appearing after operation, but when this failed, and further decompression was called for without delay, he had seen good results follow enlargement of the decompression opening left in the base of the flap of osteoplastic resections, or, in the worst cases, complete removal of the bone from the flap. Haemorrhage was not a frequent cause of post-operative trouble when care had been taken to arrest all bleeding before closing the wound, but when, despite all precautions, signs of bleeding appeared, the wound should be reopened without hesitation, the clot removed, bleeding points dealt with, and the wound closed once more. Sometimes post-operative rise in intracranial tension was due to the refilling of a cyst tapped at operation, and in cerebellar operations there might still be hydrocephalus present. Before reopening the wound an attempt should be made to reduce the intracranial pressure by tapping either the cyst or the ventricle, by introducing a lumbar puncture needle through the hole made in the bone at operation.

Very little was known of the value of radium and *x* rays in the treatment of intracranial tumours. He had seen several cases of inoperable glioma benefit by *x*-ray treatment, while others appeared to be unaffected. In one case where a portion of the tumour was removed for histological proof, subsequent *x*-ray treatment enabled the patient to return to work. She did well for a year, when she was knocked down in the street and died as the result of the accident. At the necropsy it was found that almost the entire tumour had been converted into a structureless mass, which was infiltrated with leucocytes and was apparently undergoing absorption, although there was still some active growth at one point. He attributed the various results obtained by radiation of the gliomata to the several varieties of this tumour which were believed to exist.

Professor R. E. KELLY (Liverpool) called attention to the slight changes in the inner table of the skull sometimes caused by endotheliomata. There was a curious roughening of the inner table, exactly corresponding with the underlying tumour, which might be a determining factor in its localization.

Dr. A. GURNEY YATES (Sheffield) wished to reinforce what had already been said about the importance of early diagnosis, but thought that it should be remembered that slight localizing signs might occur in the early stages and be masked ultimately by the increasing intracranial pressure. It was therefore, in many cases, not desirable to wait for the development of further localizing signs. He illustrated his point by reference to a recent case of cerebellar tumour under his care.

Mr. PERCY SARGENT, in reply, said that *x* rays were sometimes useful in the diagnosis of a tumour of the brain, therefore it was a method of diagnosis which should be used. Calcified gliomata might be revealed in this way. Very often there was a history of trauma in tumour of the brain, but if careful inquiry was made, almost anybody, at some time or other, would be found to have had a blow on the skull, and therefore too much importance should not be attributed to the injury, and its importance as the causative agent could not be accurately estimated. He agreed that the effect of increasing general pressure might be to mask localizing signs. He also referred to false localizing signs, first called attention to by Victor Horsley.

PERFORATION AND RUPTURE OF THE GALL BLADDER.

BY

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THIS paper is based on 28 cases of perforation or rupture of the gall bladder which have occurred during the last twenty-five years at the London Hospital. In that period there have been in the surgical wards 520 cases of cholecystitis with gall stones (80 acute, 66 chronic, and 374 unclassified) and 546 (73 acute, 87 chronic, and 386 unclassified) without them—1,066 cases in all.

Rupture of the gall bladder may result from violence, such as a blow on the abdomen or a run-over accident, but is a very uncommon occurrence and less frequent than rupture of the bile ducts. One only of the present series of cases was due to this cause.

A youth, aged 22, was run over by a cart. He was treated expectantly and apparently completely recovered from the accident. Two months later he visited his doctor, complaining of a

(*b*) Trephinings for simple tumours, including cysts and granulomata, vary in value inversely as their size. If a note were made of the position of the tumour in relation to the gap, these cases would be of much greater use from the point of view of research.

Fallacies.

It must not be supposed that localization of function will be easy by this method; there are many pitfalls:

(*a*) The *bête noire* of this and all other methods save the anatomical ones is the presence or absence of subcortical injury. Broca's failure to recognize this has led to much confusion and provoked the classical argument of Pierre Marie.

(*b*) *Diaschisis.*—A small disturbance at one point is capable of producing widespread functional effects.

(*c*) The gyrus underlying the centre of a cranial defect may be a silent one or have been destroyed; or, again, the margins may have contracted adhesions to the bony rim, and this may be responsible for the symptoms.

(*d*) The decompression resulting from the trephining may have in itself caused the disappearance of symptoms regardless of the position of the injury or tumour.

(*e*) The absence of cortical injury does not exclude a subcortical one; even the opposite side of the brain may be affected by contre-coup.

To sum up, each case must be carefully weighed on its merits, and only after most careful sifting of the evidence is one justified in assuming that the brain underlying a cranial gap is the part responsible for the symptoms.

Localization of Tumours.

The first essential is to determine by a careful study of the signs and symptoms the probable position of the tumour in the cortex, since only these are capable of localization by the method here described. Mark the supposed site on the key radiogram, note its distance along the base-line from the point 00, and its height above that line. Note the circumference of the head and the breadth along the line of the supposed growth. However, except for children and individuals with particularly large or small heads, it is not necessary to correct by constants, since the accurate localization of tumours to less than half an inch is at present impossible. Apply the gyrometer to the head, and slide the cursor to the position marked on the key; then measure height up and mark with a scratch. This will form the centre of the subsequent trephining. It will always be advisable for the opening to be large, but it is very advisable for the tumour to be in the centre of it, so that should removal be impossible decompression is maximal over the site of greatest disturbance. Whilst a neurological surgeon can visualize the brain beneath the cranium with a fair degree of accuracy, this faculty only comes from long experience. This method when applied to tumours should be of service, first in giving us a better idea of cortical function, and secondly in enabling us to trephine more nearly over the site of the disturbance.

Summary.

A. A method has been described of determining the gyri underlying a cranial defect by means of clinical measurements and a key radiogram.

B. Aphasia can be satisfactorily studied, since the parts presiding over the speech mechanism are within its range.

C. Trephining for tumours may be done more nearly over their position once they have been localized clinically.

D. With a long series of cases of trephining accompanied by pre- or post-operative symptoms it is hoped to confirm and revise our knowledge of cortical function, especially as regards aphasia, so that tumours may be explored with greater certainty.

The author's best thanks are due to Professor Elliot Smith, Mr. Harris, and Mr. Melville, of University College, for their generous assistance in the preparation of the key radiogram.

GENERAL DISCUSSION.

Mr. Geoffrey Jefferson (Manchester) said that he proposed to confine himself to generalities rather than to particularize on any single aspect of this wide problem. It was extraordinary how interested surgeons in general were in operations upon the nervous system. Yet he would point out that while it was not very difficult to attain proficiency in skull surgery, in the removal of bone, or in cutting flaps, when it came to brain surgery the matter was not so simple. There were many good bone surgeons, but in all the world there were very few who excelled in dealing with brain tumours. In some degree this was a remediable state of affairs, as the cure lay in more intensive work in that field. He was not convinced that pure specialization was practicable, for though it was the ideal theoretically, the work was physically so tiring, and mentally so exacting, that a holiday, as it were, in other fields was desirable. Here, as elsewhere, it was essential that the neurological surgeon should graduate through general work. One of the chief interests in brain surgery came from the fact that it was so far from perfection. In tumours of the breast the precise site of the growth and its pathology were usually known, the type of operation could be easily determined, and the future course of the case could be estimated with some confidence. How different was the picture in brain tumours! No rapid advance was to be expected, save by working on large masses of material; and this material was there if it could be recognized earlier and brought to the surgeon. In the past there had been a too widespread belief, first, that cerebral tumours scarcely ever occurred; secondly, that they could not be recognized if they did occur; and thirdly, that nothing could be done for them if they were recognized. They were, as a profession, beginning to realize that brain tumours in their various forms were common. His personal experience during six years amounted to 55 cases, of which for various reasons 38 had been operated upon. Some of the patients had been refused operation: among these were one patient with a pituitary tumour who was blind, and several comatose patients with gliomatous tumours. The purely decompressive operation had lost the pre-eminent position it had held as an end in itself. At the present time an attempt was almost invariably made to deal primarily with the tumour, the decompressive part having become subsidiary. No good was likely to be done in the last stages of compression. The pressure rendered an attack on the tumour difficult and most hazardous, and the cases did not react favourably to decompression. In these conditions hypertonic intravenous saline was the method of choice; it sometimes acted almost miraculously in withdrawing patients from danger.

Mr. J. P. Ross (London) said that only an early diagnosis brought the patient under surgical treatment at a period in the disease when that treatment was most likely to have a good effect. At the onset, and in the early stages of the disease, the symptoms and signs were frequently indefinite, and there was often little to arouse suspicion. Yet it was only by remembering that cerebral tumours were not as rare as was frequently supposed, and by suspecting the possibility in every case of repeated severe headache, of palsy, or involuntary movement, and of sensory disturbance or mental alteration, that an early diagnosis could be made. He instanced the case of a boy of 16 who complained only of his left knee; a complete examination of his central nervous system led to surgical operation and the discovery of a cerebral tumour. Familiarity with the ophthalmoscope and a certain degree of skill in its use should be the possession of every practitioner, because ophthalmoscopic examination would often prevent further loss of time in cases which had passed the earliest stage of disease. He thought that the surgeon interested in the treatment of brain tumour should have a training in neurology sufficient to enable him to localize the lesion when possible, though it would usually be desirable to collaborate with a neurological colleague in this investigation. While ventriculography might prove of the utmost value in many cases it should only be used when all the possibilities of physical examination had been exhausted. The surgeon should also be familiar with the pathology and the natural history of the various tumours, so as to be able to give a fairly accurate guess as to the nature of the neoplasm with which he was dealing; for his operative procedure might be considerably modified by his opinion on this aspect of the problem. The surgeon should hold himself

A CASE OF SARCOMA OF THE LUNG.

BY

R. ALLAN BENNETT, M.D.Lond., M.R.C.P.,

PANAMA.

The case here reported is no exception to the rule that tumours of the lungs are difficult to diagnose; had it not been for the metastases it would have been impossible to be dogmatic about it.

A woman, aged 47, had been out of sorts for two months, with no symptoms except shortness of breath on slight exertion. She had been operated upon twenty years before for tuberculous glands in the neck, and her family history was tainted with tubercle on both sides. She looked ill, but repeated examinations revealed no abnormal signs of any sort. The blood count gave 4,800,000 red cells, 11,000 white cells, and the differential count was normal. No diagnosis was made.

A fortnight later she woke in the night with great dyspnoea; the whole of the right chest behind was found to be dull and the breath sounds were absent, while in front there was an area, extending from the apex of the lung to the level of the fourth rib, where the note was tympanitic, the vesicular murmur absent, and the voice sounds were loud and close to the ear. Below this there was dullness and the breath sounds were absent. Vocal fremitus was absent over the whole side, back and front. The apex beat was not displaced; the heart sounds were feeble and the pulse varied from 90 to 110. A needle withdrew clear coloured fluid, and on aspirating the chest 16 ounces were removed, blood-stained towards the last.

The removal of this fluid made no difference to the physical signs, and did nothing to relieve the dyspnoea of the patient, which was now severe, and threatened to be fatal. After some hours the symptoms abated, and on the following day the patient was little the worse for her experience, though any movement brought on distressing shortness of breath. Examination of the fluid then and subsequently removed from the chest showed a small predominance of mononuclear leucocytes, and injection on two occasions into guinea-pigs did not affect the animals.

The temperature did not rise above 100° for the first three days, but on the fourth there was a rigor, and for the rest of the illness there was a daily variation of several degrees (97° to 104°), without much sweating. In spite of this the patient improved, and by the end of the second week she could move about with comfort. There was no cough, the physical signs did not alter, the blood count was the same, and it was thought then that the condition was a pneumothorax of tuberculous origin.

On the twenty-eighth day the patient, lying quiet in bed, cried out that she was suffocating, and an attack followed, very like that already described. This time it seemed impossible that she could rally, but in the course of four hours the symptoms subsided and she was in comparative comfort.

Not until 12 ounces of blood-stained fluid had been withdrawn from the chest was there any change in the physical signs. There was then over the whole of the right lower lobe behind a tympanitic note, with distant loud bronchial breathing, like that heard over the trachea when compressed. This sound, to which the name "cornage" was given by Behier fifty years ago, is said to be pathognomonic of bronchial obstruction, and if heard over the root of the lung and accompanied by dullness, of tumour. Though the sign in this case did not fulfil these two conditions, it was a striking phenomenon, occurring so suddenly over a wide area previously silent, and its appearance threw the first doubt upon the diagnosis already made. The condition of the patient during the next three weeks became steadily worse; the dyspnoea increased, and though the chest was aspirated twice only 9 ounces of fluid were taken away on each occasion, and the removal did not alter the physical signs. The blood examination showed an increasing anaemia: the red cells at the end of the fifth week of the illness numbered 3,980,000, the white cells kept between ten and twelve thousand, and the differential count remained normal. The temperature was hectic. There was little cough and no expectoration.

On the fifty-eighth day the patient complained of pain over the front of the chest, and a nodule the size of a pea was found at the junction of the fifth right costal cartilage and the sternum. It was extremely tender, movable under the skin, and apparently fibrous. It was excised, and the report on its structure cleared up any doubt as to the nature of the disease; it was described as a small round-cell, deeply pigmented sarcoma. Other nodules appeared at intervals in the skin of the right chest, and added greatly to the misery of the patient; they were all tender, and some of them were the starting-points of acute neuralgic pains, which spread over wide areas of skin.

Two more attacks of acute dyspnoea occurred—one on the seventieth, the other on the seventy-fourth day—with no change in the physical signs. On the eighty-seventh day, three months from the date of the first examination, the patient had an enormous haemoptysis and died at once. A *post-mortem* examination was not allowed.

In the discussions that arose over the differential diagnosis the question of primary malignant disease of the lung and pleura arose more than once, but it did not seem to those who listened to the chest that there was any justification for abandoning the diagnosis already made. It might be said that the persistence of blood in the aspirated fluid should have been allowed more weight in the decision, but there are simpler explanations of this than malignant disease of the lung, and it was possible to point to one positive sign only—the predominance of the mononuclear leucocytes. An *x*-ray examination of the chest, which might have given the diagnosis earlier, was impossible, as the patient lived in a remote district of West Africa, seventy miles from an apparatus.

I have found in the literature only one example of sarcoma of the lung with secondary deposits in the skin—a case published by Peritz of Berlin in 1896, where metastases occurred in the mediastinal and cervical glands, the spleen, the liver, and both kidneys.

PERSISTENCE OF TUBERCLE BACILLI IN BUTTER FROM TUBERCULOUS MILK.

BY

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The danger arising from the presence of tubercle bacilli in butter has not attracted in this country the attention it deserves, though probably fresh butter containing these bacilli is not infrequently on sale. With a view to determining their persistence in butter made from milk known to contain them, specimens of milk were collected from five tuberculous cows; three of these cows were afterwards shown to have extensive tuberculous lesions, and in all five cases the presence of tubercle bacilli in the milk was demonstrated by inoculation into guinea-pigs.

From these five milks butter was made by naturally ripening them without heat, other specimens being pasteurized at 55°, 60°, and 70° C.; after this heating butter was made by using a "starter" to produce artificial ripening. The various specimens of butter were melted and kept at 40° C., sedimentation being allowed; the difficulty of satisfactorily centrifugalizing butter samples was to some extent overcome in this way. From the melted samples in cylindrical containers 4 c.cm. was taken from the surface and another 4 c.cm. from the bottom, guinea-pigs being inoculated with the total 8 c.cm. When the milk was pasteurized it was heated in a container at one of three temperatures—55°, 60°, and 70° C.—the samples of milk being maintained at the selected temperature for thirty minutes, and continuously stirred while the thermometer readings were carefully watched.

The proof that tubercle bacilli caused the lesions found in the guinea-pigs was afforded by histological examination of the affected glands. Smears of the gland pulp were stained for tubercle bacilli, prolonged treatment with sulphuric acid being followed by the application of alcohol for ten minutes. To ensure the elimination of error due to the presence of acid-fast butter bacilli cultures were made; the rate of growth of the colonies and morphological considerations gave further confirmation of their identity.

The five specimens of milk were all shown to contain tubercle bacilli. One sample of butter made from naturally ripened milk was found to contain tubercle bacilli; the butter produced in other ways from this milk was also found to be similarly infected. The other four samples of milk, whether unheated or heated, produced butter which was free from tubercle bacilli. For the various examinations twenty-five guinea-pigs were used.

It would therefore appear that even the most careful pasteurization is not always a sufficient protection against the survival of tubercle bacilli. Work is now proceeding to determine the time of persistence of live and virulent tubercle bacilli in butter after it has been stored in the ice-chest, both salted and unsalted preparations being used. The present series of experiments is too small to allow definite conclusions to be drawn, but the importance of the point at issue seems to justify the publication of this preliminary report.

gradual increase in the size of his abdomen. He was not jaundiced. Laparotomy was performed by Mr. Hutchinson and an enormous collection of bile found in the subhepatic pouch, the right anterior subphrenic space, and the right lumbar fossa. In the remaining part of the peritoneal cavity (which was shut off by adhesions) was a large quantity of serous fluid. The hole in the gall bladder was sutured and the subhepatic fossa and pouch of Douglas drained. The patient made an uninterrupted recovery.

Perforation or rupture results much more frequently from ulcerative cholecystitis, generally associated with the presence of gall stones. In this series 27 cases were due to ulcerative cholecystitis, and in 26 of them gall stones were present. The remaining case, was, perhaps, sufficiently interesting to be recorded in more detail.

A man, aged 38, was suddenly seized with severe upper abdominal pain, fell down and could not move He vomited twice; the abdomen was "board-like." The diagnosis of perforation of a gastric ulcer was made (he had a two months' history of indigestion of the gastric ulcer type). Laparotomy was performed and a perforated gangrenous gall bladder found. No gall stones were present. Drainage of the gall bladder and subhepatic pouch was provided for, and the patient made an uninterrupted recovery.

Mitman reported a case of chronic pancreatitis with rupture of the gall bladder following ulceration near Hartmann's pouch, and thought that straining at stool precipitated the catastrophe. No history of strain or injury, however, could be obtained in the great majority of the present series of cases. Nordentoft recorded a case of perforation in a paratyphoid carrier with acute cholecystitis (no calculi), and cases of perforative cholecystitis during typhoid fever have been placed on record.

Age Incidence.

One patient, the traumatic case already reported, was 22 years of age; 4 were between 30 and 39; 5 were between 40 and 49; 6 between 50 and 59; 6 between 60 and 69; and 6 between 70 and 79. Sixteen of the patients were women, and 12 (including the traumatic case) were men.

Diagnosis.

Diagnosis was often very difficult. In 4 cases the diagnosis of acute intestinal obstruction was made, there being absolute constipation, colicky abdominal pain and vomiting, and some distension; 3 patients were thought to be suffering from perforation of a gastric or duodenal ulcer (2 gastric, 1 duodenal); they were suddenly seized with agonizing upper abdominal pain, vomited, and were in a condition of shock when seen, the abdomen being board-like in its rigidity. One of these patients actually fell down in the street, so sudden in onset and severe was the pain. The diagnosis of a high appendix abscess was made in 2 cases in which an abscess had resulted from perforation of the gall bladder. In just over a third of the cases acute cholecystitis was diagnosed, and in the remainder (which included the very late and moribund) diffuse peritonitis of unknown origin. Slight jaundice was present in 5 cases, of which 4 were suffering from diffuse peritonitis and one from abscess formation. From only 8 of the patients could a history of flatulent dyspepsia or biliary colic, with or without jaundice, be obtained.

Condition Found at Operation.

In early cases (4) bile and sometimes calculi were present within the peritoneal cavity; in later cases (15) diffuse peritonitis was present, while in others a localized abscess had resulted in the subhepatic pouch (10 cases, 2 of which are also included in the 15 cases of diffuse peritonitis). Diffuse peritonitis, therefore, was found in the majority of the cases—15 out of 28. The gall bladder was in a condition of suppurative or gangrenous cholecystitis and a perforation present, most commonly near the fundus. Almost as frequently it was situated at Hartmann's pouch or midway between the two. The perforation varied in length from a quarter of an inch to an inch and a half, and bile or pus and calculi were generally to be seen escaping through it. In 2 cases the gall bladder was found only with the greatest difficulty, and in 2 others was not seen at all, dense adhesions and the poor condition of the patient contra-indicating further search. Extensive fat necrosis was present in 2 cases, but in one of these the patient also had acute pancreatitis. One case of subhepatic abscess resulting from perforation of the gall bladder was complicated by fistulae leading from the abscess cavity into the colon and duodenum.

In Gjellerup's case there was a haemoperitoneum of 2 pints. Sussig and Hörnhammer reported 2 cases of extraperitoneal perforation; Wendel recorded an extremely interesting case of torsion of the gall bladder with perforation and calculi lying free in the resulting abscess cavity. The gall bladder was not gangrenous, although the cystic duct and vessels had rotated completely several times. Schweizer reported a case of perforation of the gall bladder with fat necrosis.

Treatment.

Treatment depended on several factors, especially the condition of the patient and the condition found at operation. Cholecystectomy was performed in 5 cases—one with diffuse peritonitis, 2 with abscess formation, and 2 soon after perforation. The first died, the second two recovered, and one of the last two died. The remainder were treated by drainage of the gall bladder and subhepatic pouch; suprapubic drainage was added if diffuse peritonitis were present. Summarized, the treatment is generally drainage of the gall bladder by a tube inserted through the perforation and drainage of the subhepatic pouch. Suprapubic drainage is sometimes necessary. Cholecystectomy may be performed if the patient's general condition and the local condition of the gall bladder and surrounding tissues do not contraindicate it.

Prognosis.

Of the 4 patients operated upon soon after perforation 3 recovered and one died of shock; 7 of the 8 cases in which an abscess had formed recovered, one died. Fifteen patients were suffering from diffuse peritonitis; 10 died (2 had localized abscesses in addition) and 5 recovered.

It will be seen, therefore, that when operation was performed soon after rupture, or when an abscess had formed, prognosis was good, 10 out of 12 recovering. On the other hand, when diffuse peritonitis was present the prognosis was poor, 10 out of 15 dying.

In cases of rupture due to violence the prognosis depends upon concomitant injury to other viscera, the presence of infection in the gall bladder, and the time elapsing between the accident and operation. If the bile be sterile the last factor is of less importance.

In the present series only one was the result of violence, and he recovered, although operation was performed two months after the rupture had occurred.

I wish to thank the surgical staff of the London Hospital for permission to include in this series cases which were under their supervision, and especially Mr. Hugh Lett for some helpful suggestions.

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Reviews.

INTRACRANIAL PHYSIOLOGY AND SURGERY.

Dr. Harvey's Cushing's Cameron Lectures have lately appeared in one volume under the title of *Studies in Intracranial Physiology and Surgery*,[1] the three lectures being devoted to the third circulation and its channels, to the pituitary gland, and to intracranial tumours. On such subjects the author can write as a distinguished authority whose opinions will receive careful consideration.

The first lecture deals with the cerebro-spinal fluid and its circulation. Here the author has wisely adopted the historical method of approach to problems which he himself and his fellow workers have done so much to elucidate. Beginning with the study of hydrocephalus, he traces the various investigations, clinical and experimental, which have yielded us our present knowledge. The now well known work of Weed on the absorption of the cerebro-spinal fluid by the arachnoid villi is clearly described, and full recognition is given to the same worker's valuable researches on the changes in the volume of the brain which follow the intravenous injection of hypertonic and hypotonic fluids.

An interesting discussion is that on the phagocytic properties of what the author terms the meningocytes, certain cells of the arachnoid membrane which, besides their phagocytic powers, possess very active regenerative properties, well seen in the formation of new membranes after surgical interventions. To these cells also is attributed the power of forming bile pigments from blood, a character which seems to place them amongst those belonging to the system known as the reticulo-endothelial. A further practical importance is attached to these cells by the suggestion that it is from them that the tumours now widely known as the meningiomas (after the author's terminology) arise.

The advantages of the historical method are again well seen in the second lecture on the pituitary gland. A brief but masterly sketch of the earlier work of the author and others prepares the reader for a more detailed description of the various points of interest and importance in the histology, the physiology, and the clinical disorders of the pituitary body. The last section of this lecture is devoted to the more purely surgical aspects of the subject, where much of great practical value appears. In this short lecture Dr. Cushing has succeeded in giving a fascinating account of a subject whose literature is now enormous; the reader may congratulate himself that the subject is presented by one who has an unrivalled right to speak with authority and who can assist him to separate truth from mere hypothesis.

The final lecture, headed "Intracranial tumours and the surgeon," is less academic perhaps but none the less valuable. Its scientific interest lies principally in the account of the very elaborate and careful histological studies of the gliomata which have been undertaken by the author and his co-workers.

A THEORY OF BONE.

The multifarious lesions of bone constitute one of the obscure regions of pathology, and in view of the complicated nature of the subject we have become accustomed to accept the present orthodox and stereotyped teaching for better or worse, with a full consciousness of its insufficiency and in the hope of future enlightenment. There are few books that give much promise of realizing our expectations in this respect, but among these one, the normal and pathological physiology of bone,[2] by Professors Leriche of Strasbourg and Policard of Lyons, undoubtedly gives the impression of having lightened our darkness to some extent.

The authors have divested themselves of preconceived ideas and started with a clean slate; they have made a ten years' study of every available bone lesion; have faced every difficulty of interpretation fairly and squarely; and have built up a new theory of the development, evolution, disease and degeneration of osseous tissue, which, they claim, is of universal application in the interpretation of the pathology of bone. Their theory is thus the product of their own observations and deductions, while they are careful to give full credit to previous observers for facts that are consistent with their teaching. The theory is based on the original conception of Reichert that bone is merely one of the various forms of connective tissue, of which other familiar forms are areolar tissue, tendinous tissue, mucous tissue, and cartilage, and can under varying chemical and mechanical influences pass from one form to another by a process which is usually designated "metaplasia." The authors point out that there is no essential difference between ossification in cartilage and ossification in membrane; the former is complicated by a preliminary process of absorption of cartilage, and ossification in membrane, being the simpler process, forms the basis of their research.

Their theory of osteogenesis is as follows: The connective tissue that is to undergo conversion becomes oedematous and exhibits a dedifferentiation into an embryonic form by the proliferation of its fibrillae or fibroglia; the interfibrillar oedema is next replaced by or transformed into a viscid, semisolid substance, and to the altered tissue in this stage the authors have given the name of "pre-osseous," otherwise called "osteoid." Finally, a deposit of lime salts in the pre-osseous tissue completes the process, the deposit resulting probably from an alteration in the equilibrium of the calcium and phosphate ions in the fluids of the part, in the presence of a surcharge of calcium salts in the area of ossification. To produce such a surcharge, however, there must be a supply of calcium salts in the neighbourhood to be drawn upon; if the ossification is taking place in the neighbourhood of pre-existing bone the excess of calcium is derived from this, for the authors hold that the process of ossification is always accompanied by rarefaction and partial absorption of the surrounding osseous tissue; heterotopic ossification, on the other hand, they consider only occurs in association with lesions which themselves lead to a deposit of lime salts. With regard to the osteoblasts, the authors consider that they are not bone-producers, but have the same function as osteoclasts—that is, they absorb bone, and in this respect play an important part in rendering the locally existing lime salts soluble and producing the surcharge requisite in osteogenesis. The authors show how readily their theory explains many of the phenomena of bone disease, and if it is true it will prove an undoubted boon to pathologists.

MUSCLE PHYSIOLOGY.

The encyclopaedic scale of the textbook of normal and pathological physiology[3] is indicated by the fact that the first portion of the first half of the eighth volume consists of a large octavo book of 654 pages. It deals with protoplasmic movement and muscle physiology, and the articles it contains have been contributed by nearly twenty different authors.

We may state at once that the work is of quite exceptional interest and quality, for the subject of muscle physiology is one in which many important advances have recently been made, and the contributors to this volume include many of the persons chiefly responsible for these advances.

The advance of any science is not a continuous process; there are usually one or two fields in which it is particularly rapid. The physiology of muscle is a subject in which a rapid advance has been achieved in the last decade, and for this reason a series of authoritative monographs such as are contained in the volume under review is of particular value.

[1] *Studies in Intracranial Physiology and Surgery.* By Harvey Cushing, M.D. The Edinburgh Cameron Prize Lectures. Oxford Medical Publications. London: H. Milford, Oxford University Press. 1926. (6 × 9½, pp. xii + 146; 16 figures. Paper cover, 8s. 6d. net; cloth, 10s. 6d. net.)

[2] *Les Problèmes de la Physiologie Normale et Pathologique de l'Os.* Par R. Leriche et A. Policard. Paris: Masson et Cie. 1926. (Med. 8vo, pp. 230; 33 figures. 28 fr.)

[3] *Handbuch der Normalen und Pathologischen Physiologie.* Herausgegeben von A. Berthe, G. v. Bergmann, G. Embden, A. Ellinger, Achter Band, Erster Hälfte, *Energieumsatz;* Erster Teil, *Mechanische Energie.* Berlin: J. Springer. 1925. (Sup. roy. 8vo, pp. x + 654; 136 figures. G.M. 45; bound, G.M. 49.50.)

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

AN UNUSUAL OBTURATOR HERNIA.

An obturator hernia is comparatively rare, and it is seldom possible to diagnose it before operation, which is generally undertaken on account of acute intestinal obstruction. The following case is of interest in that there was a palpable swelling which enabled a correct diagnosis to be made. This swelling was the result of spread of inflammation beyond the sac wall, due to the nature of the contents of the sac.

Mrs. D., aged 51, a patient of Dr. Kempson Brown of Ludham, was seized with severe pain in the right groin on April 17th, 1926. For a week the pain remained severe and it spread down the thigh and into the knee. During this time her bowels were opened two or three times. She vomited once after taking salts.

I saw her on April 24th. She was a stout woman, difficult to examine. Her general condition was good. There was nothing abnormal to be made out in the abdomen. Deep in the upper and inner part of the right thigh, 2 inches below the pubic spine, was a fixed tender swelling about the size of a pigeon's egg. It could be palpated more easily with the hip flexed.

Per vaginam a tense swelling could be felt, fixed to the right wall of the pelvis at the level of the upper border of the obturator foramen. She was admitted into the Norfolk and Norwich Hospital, and the operation was performed on April 25th. A vertical incision was made below the right pubic spine. There was brawny induration of the adductor longus and pectineus. A small thickened sac over the obturator canal was exposed. The sac was incised and pus escaped. (The pus was negative on being cultured.)

Right paramedial coeliotomy was then performed. The right Fallopian tube was found entering the obturator canal. The tube was withdrawn from the canal after freeing adhesions between it and the sac wall. The tube was thickened and distended with pus, and was excised. The right ovary was not involved in the hernia and was not removed.

The abdominal wound was closed and a cigarette drain inserted into the wound in the thigh. The latter suppurated freely, but except for this she made an uneventful recovery and left the hospital on May 27th.

It may be of interest to add that the patient's husband has suffered also from an unusual form of hernia. I operated on him five years ago for acute intestinal obstruction of twenty-four hours' duration. He had worn a left inguinal truss, but there was no swelling to be felt in either inguinal canal. A laparotomy was performed and a loop of small bowel was found strangulated in a diverticulum of a left inguinal hernia which extended upwards between the left rectus muscle and the peritoneum of the anterior abdominal wall—the properitoneal variety of an interstitial hernia. I may say that at the present time he has a hernia which is only too evident when he removes his truss.

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CARDIAC PAIN IN PERNICIOUS ANAEMIA.

Dr. Carey Coombs's note on cardiac pain in pernicious anaemia (July 31st, p. 185) recalled to my mind an instance in which the symptoms of precordial pain and shortness of breath overshadowed for a time the underlying condition of anaemia.

A man, aged 48, came to see me in regard to attacks of pain over the heart, which occurred frequently after he had finished his day's work; on resting after his evening meal the pain lessened in severity. His only other symptom was slight shortness of breath on exertion. He was a healthy looking man, and had suffered his pain for nearly a year before seeking advice. No cardiac murmur was heard, but the heart was slightly hypertrophied. After about a month's treatment he improved in health, and I did not see him again for three months. The shortness of breath had then returned, and he looked paler than on his former visits to me. On this occasion no further signs were evident in the heart, but his right foot was rather puffy about the ankle. I now tested his blood, and found that the red cell count was down to three and a half millions. His colour index was 1.2, and the blood film showed the typical picture of pernicious anaemia. His blood pressure was normal for a man of his age.

He was now put on prolonged treatment and lived for four years. During this period, however, he had a number of attacks of severe precordial pain, some of which closely resembled angina pectoris.

This case resembles some of those Dr. Carey Coombs cites in his article, but the evidence of cardio-sclerosis was only slight. My object, however, in recording the case is to show that, as in his series of cases, the evidence of cardiac disease overshadowed the true nature of the condition.

Fochriw, Glam. T. Stenner Evans, M.B., B.S.Lond.

SUDDEN DEATH DUE TO ACUTE HAEMORRHAGIC PANCREATITIS.

The following details of a somewhat unusual case—namely, the sudden death of a man aged 29 from acute haemorrhagic pancreatitis, may be of sufficient interest to merit publication.

The patient had been in his usual health until the day of his death, when he suffered from slight diarrhoea, which did not prevent him from playing cricket during the greater part of the afternoon. He was suddenly attacked by faintness and severe epigastric pain without vomiting or cyanosis. He recovered sufficiently to enter a car, but a few minutes later he died suddenly.

At the necropsy the pancreas was found to be densely infiltrated with blood throughout its whole extent. There was no free fluid in the peritoneum, and no evidence of fat necrosis. The gall bladder and biliary passages were normal, with no signs of calculi or of inflammation. The lower end of the ileum, however, was inflamed, although the caecum and appendix were not affected. The heart, kidneys, brain, and other organs were all normal.

This case appears to be one of the rare group described by Mayo-Robson as "ultra-acute," or "pancreatic apoplexy," the characteristic points being the violent and sudden onset, accompanied by collapse, and ending fatally with extreme rapidity. In view of the work of Deaver and Ashurst on the spread of infection to the pancreas via the lymphatics, the inflamed condition of the lower end of the ileum may have had some etiological association with the fatal pancreatitis.

A. C. Maconie, M.B.Lond., F.R.C.S.Eng.
Shanghai.

A LOCAL ANAESTHETIC FOR THE EAR.

After many years of disappointing experiment I have found a local anaesthetic mixture which is of real service to the otologist. It consists of equal parts of cocaine hydrochloride, menthol, crystallized carbolic acid, rectified spirits, and oil of cloves. I claim no originality for the prescription, because I read of it, or something very like it, in a foreign journal, either French or American, a year or more ago.

A cotton mop wet with the fluid is placed against the drumhead and left for ten minutes. At the end of that time anaesthesia is satisfactory. I have many times performed paracentesis in cases with acute trouble, and the anaesthesia has been perfect. I have several times cut away the post-malleolar drumhead to get attic drainage. Recently I removed the whole of a retracted drum, adherent to the promontory, from a nervous female patient. She felt no pain whatever. The one disadvantage of this otherwise perfect solution is its liability to set up otitis externa if it is permitted to touch the walls of the external meatus. To get over this difficulty I have tried leaving out the oil of cloves, but without this ingredient it has proved useless. I explain its great efficiency on the supposition that the oil of cloves penetrates the tympanic membrane and carries the anaesthetic drugs deep into the middle ear.

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ADRENALINE IN CARDIAC ARREST.

With reference to Dr. Livingston's case of resuscitation in an infant during anaesthetic collapse (August 28th, p. 388), I also have tried the same treatment on four different occasions on infants apparently stillborn and who did not respond to the ordinary methods of restoring animation. In three cases the infants responded at once and have since remained healthy. In the fourth case there was no attempt to breathe.

Oldham. Mary G. Cardwell, M.D.

useful table, the like of which we do not remember seeing in any previous work, giving the points by which the variety of parasite and the stage of its development can be determined from examination of blood smears. The third part is concerned with treatment, and is adequate, while the fourth and last takes up the question of prophylaxis in its general and special aspects, discussing the different measures suitable to different circumstances deduced from information gained in various parts of the globe where the matter has been scientifically undertaken.

The illustrations are not in all cases up to the high standard of the text; misprints are very few, but we note that Sir Arthur Shipley, who, with Professor Nuttall, is mentioned fairly frequently, has the misfortune of having his name wrongly spelt throughout the book, and the name Wellcome contains one mistake in each syllable. These are errors which could easily have been avoided.

There is one subject the omission of which is somewhat surprising in a book so up to date in other respects—namely, the use of the parasite in the treatment of general paralysis. The only reference to this that we have seen is a brief line in which it is stated that "malaria is credited with having a retrogressive effect on the symptoms of general paralysis." The work, however, is a mine of information, imparted with the lucidity and charm which characterize all that comes from the pen of its author.

DIAGNOSIS AND TREATMENT IN HEART AFFECTIONS.

WHEN Sir JAMES MACKENZIE prepared the lectures ten years ago which form the basis of the *Principles of Diagnosis and Treatment in Heart Affections*[6] he had in view two main objects. One was to place the essentials of heart failure within the grasp of the general practitioner; the other was to stimulate research along lines previously neglected. With the former of these objects still in view the editing of the second edition was placed in the hands of his colleague, Dr. JAMES ORR, at the St. Andrews Institute, and for any alterations in the present edition he is also responsible. He has aimed at making only such changes as would bring it into line with the newer views enunciated by Mackenzie in his later years. The arrangement of the matter has also undergone some slight modification, and the book is divided into four parts, dealing with heart failure, affections of the regulating mechanism, other affections of the heart, and prognosis and treatment.

Insistence on making facts fit a hypothesis is always a risky undertaking, and we feel that in some cases the principles of logic are strained in the attempt. This is perhaps most noticeable in the paragraphs dealing with the nature of auricular fibrillation and auricular flutter. Apart from points such as these, which are quite subsidiary as far as the general practitioner is concerned, the book will continue to fill a valuable place in dealing with cases of heart disease.

NOTES ON BOOKS.

Experimental Pharmacology as a Basis for Therapeutics[7] is an English translation of the seventh edition of the well known textbook by Professor HANS H. MEYER and the late Professor R. GOTTLIEB. The first German edition was published in 1910, and a translation into English appeared in 1914. The present volume, by Professor V. E. HENDERSON of Toronto, is thus the second English translation. The textbook itself has passed through seven editions in fifteen years. Professor Gottlieb died before the appearance of the last edition, but Professor Hans Meyer, the doyen of European pharmacologists, has continued the work alone, and the book still bears the stamp of his wide knowledge and philosophic insight. As the title indicates, it aims at presenting pharmacology as an introduction to therapeutics; the subject, therefore, is arranged with reference to the actions which it is desired to produce, and the chapters bear such headings as pharmacology of digestion, circulation, respiration, etc. A clear exposition is given of the scientific basis for the art of therapeutics, and will attract all who are interested in the general principles underlying the choice or use of drugs. The translation has been carefully made, and certain minor alterations in arrangement and nomenclature have been made which render it more easily intelligible. As it is twelve years since the earlier English translation appeared, the new volume will be practically a new book to English readers.

The first edition of Dr. H. E. STEWART'S *Diathermy, and its Application to Pneumonia*, which was favourably reviewed in our columns (1925, vol. ii, p. 849), has been exhausted, and the second edition, with the modified title *Diathermy with Special Reference to Pneumonia*,[8] which is in accord with the broader contents of both editions, shows the continued success of this method of treating lobar pneumonia by the expanded experience of 248 cases, as compared with 67 in the former edition. The author's claims are that the treatment is harmless provided the technique is properly carried out, and that it relieves the symptoms and reduces the mortality, though it does not prevent relapses nor shorten the period of illness. In 96 per cent. of the cases thus treated, however, the temperature at once began to fall by lysis. Stress is laid on the importance of starting the treatment as early as possible, and the author states that, as far as he knows, in cases in which the treatment was started before the third day death has occurred in two only. The method is said to be valuable also in bronchopneumonia and in influenzal, post-etherization, and hypostatic lung lesions, though the results are not so striking as in lobar pneumonia. The question whether or not diathermy of the unaffected lobes in lobar pneumonia will prevent extension of the consolidation and relapses is raised, but has not yet been investigated. It is confidently asserted that diathermy through the heart improves the coronary circulation and minimizes the effect of toxins on the myocardium.

We have recently received the fifth and final instalment of the lexicon of nutrition[9] by Professors E. MAYERHOFER and CLEMENS PIRQUET; the last two parts of it were noticed a few months ago (April 3rd, 1926, p. 622). Among the subjects discussed are Count Rumford, author of "An essay on food," edible snails, Schroth's cure, regulation of the diet of the healthy child, the feeding of pigs, asparagus, subcutaneous nutrition, soup, tobacco, dried milk, nourishment in prehistoric times, vegetarianism, vitamins, game, and sugar. The editors are to be congratulated on the completion of this lexicon, which, as we surmised in our notice of the first instalment (February 9th, 1924, p. 242), has fulfilled the promise of being a truly monumental work.

Believing that a book on the *Non-Surgical Treatment of Diseases of the Mouth, Throat, Nose, Ear and Eye* would be of material assistance to the young specialist and the general practitioner, Dr. ODENEAL has produced a volume[10] with that title. He does not keep strictly within the limits he has imposed upon himself in the title, and frequently breaks out into descriptions of treatment essentially surgical. He has, for example, something to say about operations on the nasal septum, much about operations for glaucoma and cataract, and about the extraction of intraocular foreign bodies. It is indeed doubtful, when dealing with special regions, if there is much to be gained by attempting to define any particular method of treatment as surgical or otherwise. In this manner two-thirds of the book is occupied. The second part is entitled "Desiderata," and describes in several chapters vaccines and serums, the vegetative nervous system, the endocrine glands, reactions, signs and symptoms, focal infections, hypersensitiveness, headaches and neuralgias, the cerebro-spinal fluid and blood, *x*-ray diagnosis, and encephalitis lethargica. The author deals with these matters and some few more in relation to the special regions indicated. All through he refers freely to his own experiences and the opinions he has formed, so that the stamp of his own individuality raises the book above the level of a mere compilation. He has, moreover, by approaching his subject from an unusual standpoint, presented in a systematic manner a somewhat diverse collection of useful information. There are only four illustrations, which are figures of instruments designed by the author.

It is because Dr. GRABHAM'S temperament is as genial as the climate of his island home that he has been able to make readable what is in essence little more than a catalogue of

[6] *Principles of Diagnosis and Treatment in Heart Affections.* By Sir James Mackenzie, M.D., F.R.S., etc., and James Orr, M.B., Ch.B. Third edition. Oxford Medical Publications. London: Humphry Milford, Oxford University Press. 1926. (Demy 8vo, pp. viii + 242; 37 figures. 10s. 6d. net.)

[7] *Experimental Pharmacology as a Basis for Therapeutics.* By Dr. Hans H. Meyer and Dr. R. Gottlieb. Second edition in English translated by Velyien E. Henderson from the seventh revised German edition. London: J. B. Lippincott Company. 1926. (Med. 8vo, pp. xi + 656; 87 figures. 30s. net.)

[8] *Diathermy, with Special Reference to Pneumonia.* By Harry Eaton Stewart, M.D. Second edition, revised. New York: Paul B. Hoeber, Inc. 1926. (Cr. 8vo, pp. xx + 228; 45 figures, 15 charts. 3 dollars net.)

[9] *Lexikon der Ernährungskunde.* Herausgegeben von Dr. E. Mayerhofer und Dr. C. Pirquet. 5 Lieferung. Wien: Julius Springer. 1926. (Sup. roy. 8vo, pp. 313. R.M. 16.50.)

[10] *Non-Surgical Treatment of Diseases of the Mouth, Throat, Nose, Ear and Eye.* By Thomas H. Odeneal, M.D. London: H. K. Lewis and Co., Ltd. 1926. (Demy 8vo, pp. xi + 428; four illustrations. 17s. net.)

An inherent disadvantage of a rapid advance in any subject is that most of the literature becomes out of date soon after it is written. A highly specialized and difficult technique usually is developed and the subject attracts a large number of investigators whose work is often of very unequal value. Consequently only those persons who have a first-hand knowledge of the most recent methods of research can appraise the value of the work done.

The names of the authors contributing to the volume under review are indeed sufficient to indicate the high quality of their contributions. Professor O. Meyerhof, the Nobel prizeman, contributes three chapters on the respiration of muscles, the thermodynamics of muscle, and the theory of muscular activity. As he observes, these three subjects are really parts of a single big problem. The evidence available has been provided by means of extraordinary refinements in chemical and physical methods. The author discusses the oxygen consumption of muscles *in situ*, and this portion of his essay deals especially with metabolism experiments upon animals and men at rest and at work. He next discusses the oxygen consumption of excised muscles, and finally the theories of cell oxidations. In the section on the thermodynamics of muscle the evidence is detailed that has been obtained from the refined methods of calorimetry, by means of which it has been possible to analyse the various stages of heat production in muscle.

The article by Professor G. Embden on the chemistry of muscular contraction is another contribution of outstanding interest. He gives a full account of the complex process by which glycogen is converted to lactic acid, and this substance then partly oxidized and partly reconverted to glycogen. Other noteworthy articles are those by Professor W. O. Fenn on the mechanical properties of muscle and the time relations of muscular contraction, and those by Professor O. Riesser on the tonus of muscle.

The chief impression gained by reading the volume is the extraordinary amount of attention that has recently been devoted to muscle physiology. The articles deal with a dozen different aspects of the subject, and in all cases the majority of the references are to work done during the last decade, and in every article there are numerous allusions to work that is still unpublished.

Another remarkable fact is that nearly all this work has been done on skeletal muscle, and in only a few instances is any account given of the application of the newer and more refined methods of investigation to cardiac and plain muscle. Knowledge of the fundamental properties of skeletal muscle is still very incomplete, but it is incomparably greater than our knowledge of these properties in other forms of muscle. This is particularly regrettable because in the treatment of disease a knowledge of the properties of cardiac and plain muscle is of far greater importance than a knowledge of the properties of skeletal muscle. It can only be hoped that the investigators who have obtained such brilliant results with skeletal muscle will seek new fields to conquer and will lighten our darkness in these other fields.

The volume under review is of more interest to the physiologist than to the clinician, but past experience assures us that every advance in the knowledge of the fundamental properties of living matter sooner or later produces results capable of direct clinical application, very often in quite unexpected directions. It is impossible to prophesy the results of research, but it appears probable that as soon as the properties of cardiac and plain muscle are analysed with the same care as has been applied to skeletal muscle, results of the greatest importance to clinical medicine will be forthcoming.

THE CONTINUITY OF LIFE.

IN his foreword to *The Physiology of the Continuity of Human Life*,[4] which is based on lectures given at the University of Glasgow during the last five years, Professor D. NOËL PATON protests against *ex cathedra* teaching as soul-destroying, alike for the teacher and the taught, and instances as examples on which a decision may have been prematurely made the Mendelian laws of inheritance, the part played by chromatin in inheritance and in the determination of sex, and the impossibility of the transmission of acquired characters. The broad-minded, though to some it may seem iconoclastic, atmosphere of these lectures may be illustrated by his treatment of the last much discussed question; the evidence is summed up to the effect that while a large number of acquired modifications cannot be transmitted, there is evidence that in certain somal changes the germ cells are affected, and that this modification is transmitted. Thus a number of examples are quoted to support the opinion that in parthenogenesis environmental conditions may play a part in the determination of sex; in a special chapter on the influence of the soma on the gonads, it is said that the interstitial cells of the gonads, the adrenal cortex, the thymus, thyrecid (the Galenic spelling of which is deliberately adopted), all seem to exert an influence on the germ as well as on the somal cells; again, the interstitial cells of the gonads and the cells of the adrenal cortex are held to be ancillary to, and have a similar origin to, the germ cells, and may indeed be considered as germ cells; and that hence these two should not be regarded as proving the influence of true somal cells on the germ cells. The eugenists who follow Weismann regard education or cultivation of characters in the individual as futile for the race, whereas those who accept Professor Noël Paton's examples of the influences of acquired modifications on the gametes can believe in the beneficial effects of education, in the broadest sense of the term, on future generations. As regards the correlation between chromosome distribution and sex determination, the conclusion reached is that it is not causal, the chromosome arrangement being perhaps merely the morphological expression of a particular line of metabolism, and the determination of sex depending upon the nutritional state of the soma or other external factor.

The influence of the gonads on the soma is successfully illustrated by figures of the interstitial cells, and attention is drawn to Boring and Morgan's description of two forms in the Sebright bantam cock, one small, the other large and resembling the luteal cells, thus suggesting that in every individual there may be two kinds of sex-determining cells, one predominating over the other. Steinach's various experiments receive due attention, and Professor Noël Paton considers that while the sex of the germ is determined by the metabolic activities of the parental gametes—whether the result of hereditary inertia or of the influence of extrinsic factors—the development of the secondary sex characters of the soma depends on the germ cells or on their ancillary cells.

In conclusion we may say that these pleasantly written lectures contain not only much information but much stimulating food for thought.

MALARIA.

THE volume on *Malaria*,[5] by Professor MARCHOUX of the Pasteur Institute, is the fifth of the treatise on medicine and therapeutics, edited by Professors Gilbert and Carnot; it is an admirable textbook of the subject, bringing together in one handy volume practically all the facts known at the present time; it will consequently be a welcome addition to the library of malariologists. It is divided into four main parts. The first, parasitological, gives an account of the different parasites, their discovery and life-history, and of the anopheline hosts, and discusses the question of the unity or multiplicity of the parasites, a subject on which the author read a paper at the First International Malarial Congress held at Rome last October. The parasite of subtertian malaria is denominated *Plasmodium praecox* in this first part, but *P. falciparum* thereafter, while the parasite of avian malaria (to which the name *praecox* is usually assigned) is called *P. relictum*.

The second part, which is devoted to the pathology of the disease, includes the clinical aspect, the pathological anatomy, diagnosis, and prognosis. It contains a most

[4] *The Physiology of the Continuity of Human Life*. By D. Noël Paton, M.D., B.Sc., LL.D., F.R.S., Regius Professor of Physiology, University of Glasgow. London: Macmillan and Co., Ltd. 1926. (Demy 8vo, pp. x + 226; 79 figures. 12s. net.)

[5] *Nouveau Traité de Médecine et de Thérapeutique*. V: *Paludisme*. Par Marchoux, Professeur à l'Institut Pasteur. Paris: J. B. Baillière et Fils. 1926. (Roy. 8vo, pp. 366; 138 figures.)

THE INNOCUITY OF SCARLET FEVER.

INTERNATIONAL STATISTICS.

IN May, 1924, the Office International d'Hygiène Publique, at the suggestion apparently of the British delegate, decided to collect information on the incidence and control of scarlet fever from the various countries represented in the office. Some of the matters disclosed in the replies to the questionary were enumerated in the *Bulletin* which reported the session of the Office International in October, 1924. It has now been thought advisable to analyse all the information so far collected; and the analysis has been published by the Office International d'Hygiène Publique (*Bulletin*, tome xviii, 1926, fasc. Nos. 6 and 7).

The first part of the publication consists of a report by Dr. Allan C. Parsons, with an introduction by Sir George Buchanan, who presented it, on the comparative prevalence of scarlet fever, its characters, and the methods adopted for combating it in various parts of the world. This is followed by notes from Drs. Cantacuzène, Amyot, Frey, and Madsen on scarlet fever in Rumania, Canada, Germany, and Denmark respectively. We do not propose to enter into a detailed account of Dr. Parsons's lengthy analysis of the information received from some thirty countries, or to follow necessarily the order in which he deals with his subject; but rather, after some preliminary remarks on the distribution and character of the disease, to indicate the position with regard to infectivity, notification, the value of hospital treatment, disinfection, and quarantine before return of the patient to school.

Historical.

However old a disease scarlet fever may be, Dr. Parsons notes that the first definite record of its occurrence dates from the middle of the sixteenth century, and that the confusion that existed between scarlet fever, measles, erysipelas, and probably diphtheria, was not cleared up until the time of Sydenham (1676). After 1740 the disease assumed a graver form, and towards the end of the eighteenth century there was an unmistakable increase in its malignancy. After the beginning of the nineteenth century there was a general lull, until the wave of malignancy again rose in the British Isles in 1831, and the disease contributed seriously to the death rate among children. About 1875, however, there was a sudden and remarkable drop in mortality and fatality rates; this drop has continued progressively, and recently complications have become less frequent. The attack rate, though less, has not shown a parallel declension; with a curious very large drop during the war, it has since gone up again. Dr. Parsons observes that the drop in mortality and fatality rates occurred before the introduction of compulsory notification and before the common use of hospitals for infectious diseases. It may, however, be suggested that both these provisions for the control of infection were based largely on recollections of the malignancy of scarlet fever before 1875, and on a fear of this disease which those who were students in the eighties and nineties can well remember.

Throughout all the epidemics from the sixteenth to the nineteenth century the chief incidence of scarlet fever was in North-West Europe and North America. It did not appear in South America until 1830, nor in Australia until about 1850. Little has been heard of its presence in tropical or semi-tropical countries; but in more recent times it has become a matter of some concern in south-eastern Europe.

Infectivity.

Down to the end of the last century scarlet fever was still regarded as a highly infectious and dangerous disease. The case mortality, it was said, might rise to 30 or 40 per cent. Though it was most common in children, it occurred, or was believed to occur, in a particularly malignant form in puerperal women. The source of infection, apart from contact with the patient, was supposed to exist chiefly in the peeling of the skin, so that fomites and even letters from scarlet fever patients could communicate the disease. It was a common cause of nephritis, and sometimes of endocarditis. Patients were not allowed to mix with other people until desquamation was complete; and one of the great difficulties in the return to normal existence was the length of time before the soles of the feet ceased to desquamate. In any event the period of isolation could not be less than six weeks. This was the recognized routine in England, though in neighbouring countries ideas were often not so strict. During the illness bedside disinfection was practised, wet sheets were hung over the door, and overalls were worn by the attendants. After an attack the patient, his nurses, his room and its contents had to be disinfected as a final step. The disinfection was undertaken by the public authorities, who ruined much material in the process. It was because of its seriousness and danger that scarlet fever was among the diseases made compulsorily notifiable in 1899. It was largely to accommodate cases of scarlet fever that the hospitals of the Metropolitan Asylums Board and other public bodies were built.

Recent Behaviour of the Disease.

The information at the disposal of Dr. Parsons is to the effect that scarlet fever is a notifiable disease in the great majority of countries where it is known to exist. His information, however, is not complete, probably because in countries where the disease is practically unknown it has been found difficult to answer the questionary. Comparison of the statistics of different countries is also difficult, because census figures are not always accurate and the methods of notification and death registration are not uniform. But from the information collected by the Office International d'Hygiène Publique it has been possible to review the description we have given of scarlet fever in England at the end of the last century in the light of knowledge of its behaviour to-day. In the first place, scarlet fever is no longer the dangerous disease it used to be. It is true that in Bulgaria, in 1924, a mortality of 2.66 per 10,000 population was recorded; among the Serbs, Croats, and Slovenes a mortality of 1.68, in Rumania 1.01, and in Danzig 1.15. But the English rate has sunk from 10 or 12 in the sixties to 0.22 in 1924. A similar fall has occurred in all the countries in Western Europe, so that since 1900 very few of these countries have shown a mortality rate over 1 per 10,000 of population.

Fatality rates are more difficult to compare, because the completeness of notification varies in different countries. The Bulgarian delegate, Dr. Golosmanoff, admitted that this might be true of his country. In London, where the majority of patients (over 90 per cent.) are treated in the hospitals of the Metropolitan Asylums Board, the fatality figures are much more exact. Consequently, whatever may be said of a rate of 14 per cent. in Italy, 17 in Bulgaria, 22 in Jugo-Slavia, or 13 in Poland, there can be little doubt about the 1 per cent. in England and Wales. In Scotland this rate is doubled; but this may be due to less thorough notification of the disease. This English rate of 1 per cent. compares with one of 12.6 per cent. in the quinquennium 1877 to 1881.

The morbidity rate in England and Wales has not shown any marked decline, except during the war, when the decline in this country, as well as many others, may perhaps be explained by the fact that the machinery for control was considerably disorganized. In 1911 the rate per 1,000 of population was 2.9; in 1925 it was 2.35. These figures, as Dr. Parsons says, "show no substantial submission of the disease to the highly organized measures of control used against it. . . . They compare unfavourably with those of some countries where the measures of control are seemingly less comprehensive." In noting a similar failure of the morbidity rate to keep pace with the decline in the mortality rate in Switzerland, Dr. Carrière suggests that too much attention is perhaps paid to scarlet fever and diphtheria, and that measles is a more important disease than either. In Australia there has been "increased incidence" of scarlet fever "without increased mortality of late years." Yet there is no sign, notwithstanding this unsatisfactory morbidity rate, of any tendency to reversion to a severe type in England and Wales,

plants, shrubs, and trees. It is a volume less for the conscientious reader than for the judicious skipper; and it will move almost to tears those gardeners amongst us who just now are looking out every morning expecting to see dahlias and geraniums cut down by frost, for there is no winter in Madeira. Dr. Grabham's book, which is called *The Garden Interests of Madeira*,[11] is illustrated by several pictures, including a portrait of the author, who was born in 1840.

The third edition of *Gould and Pyle's Pocket Cyclopaedia of Medicine and Surgery*[12] has been revised and brought up to date by Dr. R. J. E. Scott of New York. It is a handy little volume in which the information given is arranged alphabetically, so that reference is easy. Naturally much of what it contains is matter of common knowledge; but in cases of doubt as to the meaning of a term, or the latest treatment of a disease, information in a concise form may be rapidly gained. It is curious, however, that while "hoarhound" and "holocaine" occur in the cyclopaedia, insulin fails to get individual mention and must be searched for under diabetes. The number of cross-references in the book has been largely increased.

[11] *The Garden Interests of Madeira.* By Michael Comport Grabham, M.D., LL.D. London: William Clowes and Sons, Ltd. 1926. (Cr. 8vo, pp. xi + 100; illustrated. 5s. net.)

[12] *Gould and Pyle's Pocket Cyclopaedia of Medicine and Surgery.* Third edition, revised, enlarged, and edited by R. J. E. Scott, M.A., B.C.L., M.D. New York. London: H. K. Lewis and Co., Ltd. 1926. (Fcap. 8vo, pp. 922; illustrated. 12s. net.)

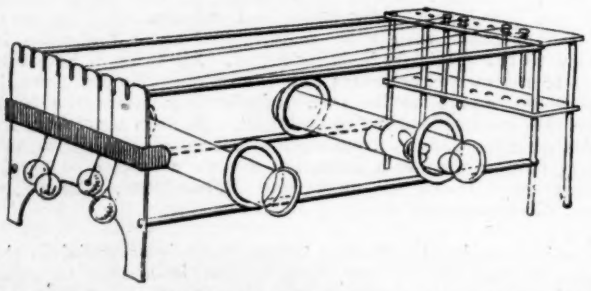
PREPARATIONS AND APPLIANCES.

A Suspension Apparatus for Crowe's Mouth Gag.

Dr. W. S. Thacker-Neville (Darlington) has designed a suspension apparatus for the mouth gag in tonsillectomy. He writes: The mouth gag employed in tonsillectomy by Professor Crowe in the Johns Hopkins Hospital, like the Davis mouth gag in this country, requires an assistant or a support. In order to save an assistant this tiring task, and in order to avoid the pressure on the chest caused by another apparatus employed for the same purpose, I have had made the simple apparatus illustrated here. Formerly I used a table to support the hook, but this apparatus is more easily carried about for operations in different places. The apparatus is made by the Medical Supply Association, Gray's Inn Road, London, W.C.1.

A Radium-Needle Stand.

Drs. Arthur B. Smith and Sydney M. Smith (London, W.) write: This stand, which is 8¼ inches long, 4 inches broad, and 2¾ inches high, is designed to facilitate the use of radium by the surgeon in operations of access and insertion. The illustration shows the stand with radium needles and tubes in position, together with their attached threads and identification beads. Sterilization may be effected by boiling the stand with the needles and tubes *in situ*, or the needles and tubes may be sterilized separately in spirit and then placed in position. If the former method is employed the threads are anchored by means of a metal band with an aseptic hinge, which secures them against the end of the apparatus, while the radium tubes remain safely in test tubes passed through the wire loops provided on the lower horizontal support of the frame. At operation the band is swung back to liberate the threads, and the stand is placed on a table close to the operator ready for use. The stand has been made for us by Messrs. J. Gardner and Son, 35, Forrest Road, Edinburgh.



MEDICAL DEFENCE UNION.

Annual General Meeting.

The annual general meeting of the Medical Defence Union was held on September 23rd, with Sir Herbert Waterhouse, the president, in the chair. A total membership of 13,480, a net gain of just over one thousand on the year, was reported by the council.

The annual report laid stress on the additional benefits which the Union has lately provided by assuming responsibility, at the council's discretion, in claims made against a member in respect of the act or omission of a locumtenent not himself a member of a defence society. The employment of an assistant, whose engagement is of a more or less permanent character, is on a rather different footing, and a reciprocal arrangement has been arrived at between the two English defence societies whereby, if the principal is a member of one of them, and his assistant a member of the other, either society will defend its member in an action against the principal arising out of the acts or omissions of the assistant. This arrangement has been extended to the protection of a member of the honorary staff of a hospital in the event of proceedings against him in consequence of the act or failure of a subordinate medical officer who is himself a member of one of the societies.

The report records many instances of assistance given in resisting unjust claims or allegations. In eight cases legal assistance was afforded to members in appeals against decisions of Insurance Committees, with wholly successful results in six, and a reduction of the suggested penalty in the other two. The Union also successfully defended four members summoned to appear before the General Medical Council, and was successful in one of two cases in which it appeared as or in support of the complainant. It has also been in correspondence with the Registrar of the Council with regard to the appearance in a newspaper of signed articles on public health questions by a whole-time medical officer of health. The Union, believing it to be in the interest of the public that such officers should not be debarred from publishing signed articles on public health questions, elicited from the General Medical Council, which had sent a warning letter in one such case, that what it discountenanced was only the abuse of this practice, and that each case would be dealt with according to the special circumstances.

An interesting report by the solicitors to the Union (Messrs. Hempson) was also laid before the members. With regard to appeals to the Ministry of Health from the decisions of Insurance Committees, the solicitors state that in their experience such appeals were heard with the utmost fairness, and a full and impartial inquiry was ensured. But the award of costs was seldom nearly sufficient to defray the expense in which the practitioner was involved, and often even such costs as were awarded were irrecoverable owing to the lack of means of the unsuccessful party. They also lay stress upon the expense in ordinary law cases to which practitioners would be subject were it not for the defence society which, in addition to undertaking the defence, indemnified against the costs of the other side and against damages of an unlimited amount. During the last fifteen years, in sixty-seven of the heaviest cases which the Union has been called upon to undertake, the average cost of each case to the society has been £270. In addition to the personal security afforded by membership, the solicitors point out that it is in the interests of the profession that medical men should be members of a defence society; otherwise they are likely to be frightened into settlements, which will encourage the unscrupulous litigious speculator. The solicitors express regret that in the legal profession there is no body corresponding to the Union, and that to obtain adequate cover it is necessary for the lawyer to take out an insurance policy costing many times the amount of the Union's annual subscription.

Sir Herbert Waterhouse, in commending the report of the meeting, expressed regret that the British Medical Association (having regard to the position of its members who were on the General Medical Council when cases in which the Union was concerned came forward) had been unable to accept the invitation to nominate two members for appointment as vice-presidents of the Union; he added that the Union was fortunate in having already on its council three members of the Council of the British Medical Association. He welcomed the recommendations in the report of the Royal Commission on Lunacy as holding out the prospect of early legislation to afford a larger measure of protection for doctors certifying mental cases. He also paid a high tribute to the services rendered to the Union by its general secretary (Dr. James Neal) and its solicitors.

The report of the council and the financial statement (which showed assets to the amount of £24,000) were adopted unanimously, and Dr. W. T. Lydall, Mr. R. F. Jowers, and Dr. Seymour Taylor, the retiring members of council, were re-elected.

Nova et Vetera.

BILLS OF MORTALITY.

For three hundred years the only official statistics of life and death in the metropolis were to be found in the Bills of Mortality of the City of London. The Plague was probably the cause of their institution. There had been severe epidemics of this disease in the years 1513, 1516, and 1518, and in 1528 there were not wanting signs of its return, which induced King Henry VIII and his advisers to require of the Lord Mayor from time to time a statement of the weekly mortality in and around the city.

Dr. Creighton, in his *History of Epidemics in Britain*,[1] states that "on the 20th" (October, 1532) "Audely the Lord Chancellor writes that many die of the plague, the sergeants in Fleet Street have left in consequence, the Inner Temple has broken commons, the lawyers being in great fear. The Council have commanded the mayor to certify how many have died of the plague." That is the first known reference to the London Bills of Mortality." But Dr. Creighton has brought to notice from the Record Office a return made by the Lord Mayor in 1528. This consists of a bald list of burials, parish by parish, under two headings, one being "of the plague" and the other "not of the plague." It is probable that at first these Bills were only returned in years of epidemic disease, but a hundred years later they had become established as weekly and annual records. Parish registers of births, marriages, and deaths were instituted throughout England in 1539, but at first they were very irregularly kept, although there were and are remarkable exceptions.

From the bald statement of plague and not-plague deaths in 1528 the weekly and annual Bills of Mortality had grown into rather elaborate documents a hundred years later and were rendered in a form which was kept up until a more accurate method of recording vital statistics was introduced less than a century ago. In the *London Medical Gazette* for February 20th, 1836, there appeared the "Weekly account of Burials," dated February 16th. The last of the Annual Bills appears in this volume of the *Gazette*, for the Act of Parliament enacting the registration of births and deaths was passed in 1836, and the Registrar-General's functions began in 1837. So well established had the term "Bills of Mortality" become that it was used as a topographical term signifying London and suburbs. Thus Thackeray in the *Newcomes* (1854) wrote of Barnes Newcome: "In a word, he was as scrupulously whited as any sepulchre in the whole bills of mortality."

There is no complete series extant of the early Bills of Mortality, but a good many specimens are preserved in the Guildhall Library, and facsimiles were printed by the father of vital statistics, John Graunt, F.R.S., Captain of Trainbands and Haberdasher, in his book "Natural and Political Observations mentioned in a following Index, and made upon the Bills of Mortality, etc., etc.," of which the *Epistle Dedicatory* is dated 1662, although it was not published until 1665. His account of the way in which the statistics were made and collected is worth quoting:

"We have hitherto described the several steps whereby the bills of mortality are come up to their present state: we come next to show how they are made and composed, which is in this manner, viz., when anyone dies, then either by tolling or ringing of a bell, or by bespeaking of a grave of the sexton, the same is known to the searchers, corresponding with the said sexton. The searchers hereupon (who are antient matrons, sworn to their office) repair to the place where the dead corps lies, and by view of the same, and by other enquiries, they examine by what disease or casualty the corps died.

"Hereupon they make their report to the Parish Clerk and he, every Tuesday night, carries in an account of all the burials and christenings happening that week to the clerk of the hall. On Wednesday the general account is made up and printed, and on Thursday published and dispersed to the several families who will pay four shillings per annum for them."

Speaking of venereal disease, he says:

"In the next place, it shall be examined under what name or casualty such as die of these diseases are brought in: I say, under the consumption; for as much as all dying thereof die so emaciated and lean (their ulcers disappearing upon death) that the old women searchers, after the mist of a cup of ale, and the bribe of a two groat fee, instead of one, given them, cannot tell whether this emaciation or leanness were from a phthisis, or from an hectic fever, atrophy, etc., or from an infection of the spermatic parts, etc."

It is evident that statistics thus compiled were hardly likely to be accurate, even if they were honest, of which there must be a grave doubt, for the searchers, who were only allowed a fee of one groat (fourpence) per corpse, must often have been tempted, as Graunt says, to conceal the real cause of death when it was known; while their ignorance and the fact that they did not see the patients alive prevented their making a satisfactory diagnosis. No doubt many deaths from epidemic and contagious disease were concealed by such means.

From December, 1624, to December, 1625, the Bills dealt with 97 parishes within the walls, 16 parishes without the walls, standing part in the liberties and part without in Middlesex and Surrey; and at the Pest House and 9 out parishes (including St. Giles-in-the-Fields, Whitechapel, St. Martin's-in-the-Fields, etc.). In the year 1625 the city of Westminster was added, and in the year 1660, just before Graunt's book appeared, Islington, Lambeth, Stepney, Newington, Hackney, and Redriff (that is, Rotherhithe) were included in the Bills. Graunt refers to the crowded state of the city, and his complaint about the traffic has a very modern ring.

"But now both these Gates" (Newgate and Ludgate), he wrote, "are not sufficient for the communication between the Walled City, and its enlarged Western Suburbs, as daily appears by the intolerable stops and embarasses of Coaches near both these gates, especially Lud-gate."

The complete Bill for the year 1629 is headed as follows: "A General Bill for the present yeere, ending the 17th of December, 1629, according to the report made to the King's most excellent Matie by the Company of Parish Clerks of London," etc. The total burials were 8,771, being 4,668 males and 4,103 females. "Whereof of the Plague 0." This was not a plague year.

The causes of death were set forth under sixty headings as follows:

The Diseases and Casualties.

Abortive	33	Jawfalne	10
Aged	509	Killed by severall accidents	54
Ague	32	King's Euill	16
Appoplexy and Meagrome	22	Leprosie	2
Blasted and Plannet ...	13	Lethargie	1
Bloody Flux and Scowring Flux	449	Livergrowne	94
Burst	2	Lunatike	6
Cancer and Wolfe ...	3	Made away themselves...	8
Canker	6	Measles	42
Childbed	150	Mother	1
Chrissome and Infants...	2,596	Palsie	17
Collicke Stone and Strangury	48	Plurisie and Spleene ...	16
Consumption and Cough	1,827	Purples and Spotted Feaver	32
Convulsion	52	Quinsie	1
Could	10	Rising of the Lights ...	44
Dead in the streete and fields	18	Scalded	3
Dropsie and Swelling ...	227	Scurvey	12
Drowned	43	Sores, Broke and Brused Limbs	23
Executed	19	Sore Mouth and Thrush	15
Falling Sickness ...	3	Starved at Nurse ...	4
Feavers	924	Stilborne	460
Fistula	11	Suddenly	63
Flocks and Smallpox ...	72	Surfet	63
French Pox	17	Swine Pox	5
Frets	1	Teeth	440
Gangrene	6	Timpanie	8
Goute	2	Tissicke	8
Griefe	18	Vomiting	1
Imposthume	58	Wormes	19
Jaundis	47		

Buried:	
Males	4,663
Females	4,103
In all	8,771

Whereof of the Plague 0.

This list of diseases hardly corresponds with the *Nomenclature of Diseases* of the Royal College of Physicians, and some of the headings may require explanation. For instance, "Meagrome," which is bracketed with "Appoplexy," is no doubt a form of meagrim, a corruption of migraine. "The Meagrims" was loosely used for various affections of the nervous system. "Blast" is defined by Halliwell (*A Dictionary of Archaic and Provincial Words*, tenth edition, 1887) as an inflammation or wound, an ailment attributed to the action of witchcraft (Somerset); also, to

though there is evidence that in some countries, especially in South-East Europe, scarlet fever remains a severe disease.

Spread of the Disease.

The majority of the reporters are of opinion that the spread of scarlet fever is almost entirely a matter of personal contact, often contact with slight abortive cases. Much importance is attached to the mild or "missed" case. Opinion differs greatly on the subject of "carriers"; and Dr. Scholes of Melbourne, who lays particular stress on "missed" cases as a source of infection, and on patients with post-nasal or pharyngeal catarrh, or otorrhoea following an attack, submits that there is no evidence of the existence of "healthy carriers," which he regards as merely "a pleasant and easy hypothesis." Dr. Scholes and the Norwegian reporter regard the influence of schools in spreading the infection as very slight; but in Bulgaria it is thought that schools play an important role. Milk is still an occasional, though rare, medium of infection in England; but Dr. Grain of Norway says that no great explosions of epidemicity, as in milk- or water-borne typhoid outbreaks, occur.

Isolation.

The extent of hospital provision for the treatment of scarlet fever varies greatly in different countries. In England and several other countries the majority of patients are so treated, and apparently parents prefer that it should be so. In Italy two-thirds of the patients are treated at home. In Bulgaria hospital isolation is not considered essential. In Greece lack of transport facilities makes it almost impossible. In countries where scarlet fever has not caused much concern it may be assumed that no special hospital arrangements are necessary. It is interesting to remember that during the war, when there was shortage of hospital accommodation, the Ministry of Health asked medical practitioners to send only severe cases into the Metropolitan Asylums Board hospitals; it is interesting also to note that in Holland, during epidemic times, only grave cases are admitted to hospital. In Norway slight cases, both in towns and villages, are now treated at home.

Disinfection.

Disinfection in scarlet fever may be considered under two headings. In the first place, there is "bedside" disinfection, the object in view being the destruction of germs as they are produced by the patient. This system is based on the view that only the patient and his recently soiled clothes, food vessels, etc., are infectious. In some countries the opinion is gaining ground that this is the only form of disinfection which need be carried out. The efficacy of "terminal" disinfection is gradually coming to be held in doubt. Thus in Norway fumigation is not officially recommended, but is carried out if desired; and although bedclothes and underclothing are boiled, and steaming is carried on in most cities, Dr. Karlstroen remarks that "if the disease steadily declines in malignancy, and if ear and secondary complications cease altogether, we must weigh earnestly the possibility of dispensing with isolation and disinfection." In the United States particular attention is given to mechanical cleansing and laundering, boiling and burning. Surface disinfection of the sick-room with formaldehyde is regarded as relatively unimportant and, indeed, unnecessary. In Denmark disinfection is gradually being given up in many places, especially when the patient has been removed to hospital. In Holland opinions differ; in some cities it is only carried out by request and in order not to shake the public belief in the infectiousness of scarlet fever.

The quarantine period for patients in the United States is from four to six weeks, but differs in different States. Four weeks is the minimum period in Australia and Italy; five weeks in Holland, and six weeks in Stockholm. In several countries desquamation is still taken as a guide to freedom from infection; but in Norway peeling of the feet is disregarded. In Sweden any peeling is disregarded after six weeks. In Holland there is an opinion that late peeling is innocuous. In Melbourne patients are only passed for discharge when they are free from haemolytic streptococci in the nose and throat, and from any streptococci which prove very fatal to guinea-pigs. The date of return to school varies in different countries from seven to twenty-one days after discharge from hospital or "after all danger is considered to be over." Dr. Parsons's report embodies a long review of the "Dick" test, concluding with the opinion of Dr. King in America that, while many American physicians consider that the antitoxic serum should always be used in severe cases for curative purposes, the time has not yet arrived to report definitely about the value of the toxin for diagnostic and prophylactic purposes.

Conclusions.

The report of Dr. Parsons and the other matter contained in the *Bulletin* of the Office International d'Hygiène Publique are of great interest, and serve to show the value of Governmental inquiry in some forms of research. For it is doubtful whether any private scientist could have succeeded in obtaining from thirty countries such answers as the Office has received to its questionary. At the same time, whatever may be the theoretical value of the accumulation of such data, the Governments concerned ought to bear in mind the more practical point—whether the information gained can be used to lighten the burdens imposed on their subjects and to economize their countries' resources. Such, we gather, was to some extent the object of the Ministry of Health when its representative, Sir George Buchanan, proposed the inquiry. Dr. Parsons, in the course of his report, states that the chief reason for the inquiry by the Ministry of Health into the present position of scarlet fever in England and Wales was the fact that the morbidity rate shows little sign of decline, although in many great cities the proportion of children of susceptible age is getting less and less. Sir George Buchanan, on the other hand, in his introduction to the report, states that in Great Britain it is felt necessary to revise the traditional system of hospital isolation in the treatment of scarlet fever, in order to set free beds for other diseases, such as measles. For this reason he regards the evidence from other countries as to isolation as being of the greatest value.

The facts seem to be as follows. Before 1875 scarlet fever was a grave disease, with a heavy mortality among children and a tendency to permanent sequelae among the survivors. Partly owing to the mental impression made by the former gravity of scarlet fever an elaborate and costly system of control was developed. This system involved the country in the cost of notification, of health inspectors, of disinfection, and of hospitals mainly for scarlet fever cases; but the evidence that these measures have controlled the disease is inconclusive. The gravity of scarlet fever had already begun to decrease, though the number of cases remained, and still remains, at much the same proportion to the population. Experience during the war showed that not much harm was done by leaving milder cases to be treated in their own homes. Finally, the experience of various countries throws doubt on the value of many of the original ideas for controlling the disease, brings in question the necessity of disinfecting the patient's room and the importance of desquamation, and casts doubt on the doctrine that infection could be spread by packing up portions of the patient's scales in his letters.

Unfortunately it does not seem to have been a part of the functions of the Office International d'Hygiène Publique to formulate any conclusions from the facts and opinions which it has collected. We look forward, however, to hearing more on the matter from the Ministry of Health. We may remind our readers that there are at present about thirty diseases on the notifiable list. The report before us is evidence of the value of the inclusion of scarlet fever in the original list of nine notifiable diseases. We hardly like to suggest that possibly that inclusion has served its turn; but the report does suggest that perhaps an occasional overhaul of the list of notifiable diseases might lead to some revision.

British Medical Journal.

SATURDAY, OCTOBER 9TH, 1926.

APHASIA AND KINDRED DISORDERS OF SPEECH.

ANOTHER chapter of profound interest and importance has been added to the long history of the study of aphasia by the publication in complete form of the record of Dr. Henry Head's researches. The work is published in two handsome volumes of small quarto containing together about 1,000 pages, under the title of *Aphasia and Kindred Disorders of Speech*.[1] The substance of Dr. Head's views has already been made known in his Linacre and Hughlings Jackson Lectures in 1920 (published in *Brain*) and in the issue of *Brain* for November, 1923. In the present volumes his observations and conclusions are described in fuller detail, and are brought into sequence with the views of his many predecessors in this complex field of study.

As an introduction to the description of his own work, Dr. Head devotes a considerable proportion of his first volume to an historical review of great interest. He relates how Gall was the first to attempt to subdivide the brain into a number of separate "organs," and to place, though on fantastic grounds, the "faculty" for verbal memory in the frontal lobes. The same hypothesis was maintained by Bouillard, though he studied the phenomena of speech not so much as an intellectual "faculty," but as a form of co-ordinated movement, and he set out to prove from clinical and *post-mortem* observations that the tongue and other correlated organs can be paralysed for the act of speech while capable of all movements not associated with speech. Bouillard recognized that speech might be lost either from loss of control over the movements of speech or from loss of the memory of words, and he believed that both these aspects of speech were dependent on the frontal lobes of the brain for their fulfilment. He was followed by Broca, whose brilliant clinical and anatomical researches led him to implicate the third frontal convolution as the seat of the faculty of articulated speech. Broca divided clearly affections of speech of central origin into "aphemia" and "amnesia verbalis." The aphemic patient is speechless except for a few monosyllables, or for exclamations uttered under the stress of emotion; he can, however, understand what is said to him, while unable to repeat words. Such a patient is the motor aphasic of later writers. The sufferer from verbal amnesia, on the other hand, though he can pronounce words, cannot appreciate the meaning of words—that is, he has lost the special memory of both spoken and written words, and consequently cannot use words to express his ideas; he is suffering from what others have called "sensory aphasia." Broca realized that many cases did not fall clearly into the category of either "aphemia" or "amnesia verbalis," but he was emphatic that pure aphemia was dependent on destruction of the third frontal convolution on the left side. Wernicke carried the conception of sensory aphasia further, and postulated the presence of an auditory centre for word memories in the first temporal convolution. A lesion of this centre would produce loss of "sound-images" and so lead to inability to understand spoken words. Bastian was the first to divide sensory aphasia into two forms, subsequently called "word-deafness" and "word-blindness."

Then in 1906 Pierre Marie attacked the whole doctrine of motor and sensory aphasia, denying to the third frontal convolution any direct bearing on speech. In his view there was only one form of true aphasia—namely, sensory aphasia produced by a lesion of Wernicke's zone. Broca's aphasia he regarded as sensory aphasia *plus* "anarthria," which was a defect of the higher articulatory aspects of speech and was dependent on a lesion of the "lenticular zone," a wide area including the internal capsule and the lenticular and caudate nuclei. Further, sensory aphasia for him consisted essentially in a loss of intellectual capacity of which the defect of speech was but a part. Perhaps the most notable contribution to the whole subject in recent years is the laborious and accurate analysis by Henschen of 1,337 cases of speech disorder, some observed personally, but for the most part carefully abstracted from the literature. His conclusions form the most advanced argument for the anatomical localization of the mechanisms underlying normal speech.

Dr. Head approached the study of the subject primarily from the psychological aspect—that is, he set out to study the forms assumed clinically by aphasia and kindred disorders of speech without reference in the first instance to anatomical and physiological considerations. He was much influenced in the course of his work by the teachings of Hughlings Jackson, with whose views he found his own conclusions to be closely in accordance. He devised a new series of tests designed to reveal the nature of the disorders of speech, and these tests he gradually formulated during the years preceding the great war. The war presented an unexampled opportunity for the observation of cases of head injury in otherwise healthy young men, a group of cases obviously superior as subjects of study to the elderly arterio-sclerotic patients more commonly suffering from these disorders in civil life.

Following this historical review comes a detailed account of his investigation of the cases and the conclusions to which he was led. The tests are designed to demonstrate, not only defects of comprehension or execution of speech, but also—and here they differ from most previous tests—degrees of such defects. For this reason the series of tests is graduated in relation to the complexity of the task which the patient is called upon to perform, and some of them extend beyond the boundaries of what is ordinarily understood by speech. To understand them it is essential to study Dr. Head's book in detail, and we can here only indicate briefly his main conclusions. They are very destructive to the older theories with which clinicians are familiar, and to which we have referred above.

For Dr. Head such terms as "aphasia" and "amnesia" are descriptive merely of abnormal forms of behaviour, and there are no "centres" for the use of language. Disorders of speech, he says, cannot be classified as affections of speaking, reading, and writing—a conclusion which will receive general assent. Further, "these disorders of language cannot be classified as motor or sensory," even in the widest sense of executive and receptive. It is here that Dr. Head is chiefly in conflict with the more conventional

[1] *Aphasia and Kindred Disorders of Speech.* By Henry Head, M.D., LL.D., F.R.S. In two volumes. Cambridge: The University Press. 1926. (Cr. 4to; Vol. I, pp. xiv + 549; Vol. II, pp. xxxiii + 430. 63s. net the two volumes.)

cast the eyes up in astonishment (Devon); and planet-struck, paralytic (Linc.); "a blasting, or planetstreeking" (Florio). The same authority thus explains "Chrissome": "Chrisoms in the Bills of Mortality are such children as die within the month of birth, because during that time they are to wear the chrisom-cloth," which is "the white cloth which is set by the minister of baptism upon the head of the child newly anointed with chrism after his baptism." Burst is inexplicable. Wolfe is of course the English of lupus. The meaning of "Frets" is obscure.

"Jawfalne" or Jawfallen is not to be found in any of the dictionaries consulted, but Dr. John E. Morgan[2] of Manchester, writing in 1862, quoted Dr. Morrison, who practised for eight years in Demerara, as stating that trismus nascentium was there called "jawfall." This name seems at first sight to be chosen on the principle of *lucus a non lucendo*, but some writers describe an obvious relaxation and dropping of the jaw as characteristic of the last stage of trismus.

"Livergrowne," which Captain Graunt connected with rickets, means enlargement of the liver. "Mother" is of course hysteria. "Tissicke" is phthisis. In the Bills for some other years we find as causes of death Headmouldshot, Horseshoehead, Mouldfallen, and Flocks-and-smallpox. The first is explained in the *Lexicon Physico-Medicum* of Dr. John Quincy (tenth edition, 1787) thus: "This is when the sutures of the skull, generally the coronal, ride; that is, have their edges shot over one another; which is frequent in infants, and occasions convulsions and death." A similar pathological theory seems to have survived for many years, for Dr. Marion Sims[3] in 1846 and 1848 attributed trismus nascentium to displacement of the occipital bone, and in 1884 Dr. Hartigan[4] of Washington, D.C., strongly supported him, quoting many authorities and cases.

Quincy gives "Horshoehead" as "a disease in infants, in which the sutures of the skull are too open, the opposite to Headmouldshot." According to Nares's *Glossary* of 1859 "Flocks" means sediment. The relation of this word to small-pox is obscure.

"Mouldfallen" seems to mean depression of the fontanelles. "Rising of the Lights" is still used in some places for emphysema, but it is difficult to say why cases of this condition should in some Bills be bracketed with "Mother." The two together were credited with 84 burials in 1634, in which year rickets first appears as a cause of death (14 cases). "Overlaid and starved at Nurse" and "Greene sickness" need no explanation. "Greefe" and "Frighted" are less obvious as causes of death. There were 43 burials of drowned persons in 1629, and in 1653 fifteen persons hanged themselves. What shares religion, politics, and poverty had in causing these suicides the Bills say not.

It is evident that these records are in general very untrustworthy as indications of the diseases which caused death, but one startling inference can be drawn from them—namely, the enormous infantile mortality in London in those days. We may safely conclude that the following headings can only refer to children: Abortive, Convulsions, Starved at Nurse, Teeth, Chrisomes and Infants, and Sore Mouth and Thrush. By adding these together for the year 1629, the total of 3,600 infantile deaths is obtained, out of a total at all ages of 8,771. Probably even this is too low, for there were 449 deaths from "Bloody flux, scowring and flux," of which some surely should belong properly to the category of infantile diarrhoea. Moreover, there are no deaths from respiratory diseases among the 3,600.

Pepys has several references to Grant or Graunt in his *Diary*. He notes that on March 24th, 1662, while his wife was shopping, he went "To Westminster Hall, and there bought Mr. Grant's book of Observations upon the weekly bills of mortality, which appears to me, upon first sight, to be very pretty." On July 25th, 1665: "This day my Lord Brunker did give me Mr. Grant's book upon the Bills of Mortality, new printed and enlarged." Pepys was not consistent in the spelling of names, but the accepted form is Brouncker. He was William, second Viscount, "a respectable mathematician," who was made M.D. at Oxford in 1647, and was the first President of the Royal Society, of which Pepys was elected a Fellow on February 15th, 1665. Graunt had been elected three years before, and Wheatley, in his edition of the *Diary*, recalls in a footnote that he was recommended by the King (Charles II), and quotes from Sprat's history of the Society that "his Majesty gave this particular charge to his Society, that if they found any more such tradesmen, they should be sure to admit them all, without any more ado." Graunt was a haberdasher in Birchin Lane in the City of London, where he was born in 1620 and where he died in 1674. Pepys, on April 20th, 1663, called on Graunt and "there saw his prints, which he showed me, and indeed are the best collection of any things almost that ever I saw, there being the prints of most of the greatest houses, churches, and antiquitys in Italy and France and brave cutts."

The Company of Parish Clerks, which was for so long responsible for the preparation and printing of the Bills of Mortality, still exists and has its Hall in Silver Street, near Wood Street, in the City. Originally the clerks were singers, whose functions were rather like those of vicars choral in a cathedral. The company was licensed as a guild in the year 1233 as the Fraternity of St. Nicholas. Their latest charter, granted by James I in 1611, directs that only such shall be admitted to be clerks as are "able to sing the psalms of David and to write." Charles I granted the company leave to have and use a printing press for the production of copies of those Bills of Mortality which have been the subject of this paper.

References.

[1] *A History of Epidemics in Britain from A.D. 664 to the Extinction of the Plague.* Cambridge, 1891.

[2] The Diseases of St. Kilda, by John E. Morgan, M.A., M.B., *British and Foreign Medical Review*, January, 1862, p. 176.

[3] Trismus Nascentium, its Pathology and Treatment, by J. Marion Sims, M.D. *Amer. Journ. Med. Sci.*, 1884, vol. xi, p. 263, 1846; also vol. xvi, pp. 59 and 354, 1848.

[4] Trismus Nascentium, by J. F. Hartigan, M.D., ibid., vol. lxxxvii, p. 84, 1884.

E. M. L.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee sixty-four cases were considered and £785 15s. 6d. voted to fifty-one applicants. The following is a summary of some of the cases relieved.

L.R.C.P.Ed., aged 73, who practised until 1924. Since lived with aged mother until her death last year. Has been offered a home with a married daughter, but must contribute towards his maintenance. Only income old age pension. Voted £40 in twelve monthly instalments.

Daughter, aged 64, of M.R.C.S. who died in 1869. Now lives in an almshouse with an allowance of £13 a year; only other income £25. Friends gave £2. Voted £30 in twelve monthly instalments.

Widow, aged 62, of M.R.C.S. who died in 1923. Owing to ill health quite unable to earn her own living and is entirely dependent on her mother, aged 83, whose only income is a small army pension. Voted £30 in twelve monthly instalments.

Widow, aged 59, of M.B.Glas. who died this year. Only income £50 per annum. Son, aged 22, is apprenticed to engineering and has two and a half years to serve; he receives a guinea a week and she has to supplement this to pay his board and lodging. Premises have been secured to enable her to set up a tea-shop, and on the strong recommendation of the Fund's visitor a grant was made of £20 in twelve monthly instalments, also £10 to help furnish the premises.

Widow, aged 58, of M.R.C.S. who died suddenly this year. Dependent on two daughters, bank clerks. Only income £14 per annum. Rent of flat taken on lease £125 per annum. Asks for help for boy, aged 15, who has a scholarship at a public school. Voted £10 in two instalments.

Widow, aged 68, of M.D. who died in 1919. Has a great difficulty in obtaining work on account of a mentally deficient daughter, aged 26, who needs care. They are now dependent on a married son and his wife, but the son is now out of work and his wife's earnings are their only support. Arrangements are in hand to secure a home for the daughter and £25 in twelve monthly instalments was voted to the applicant.

Widow, aged 38, of M.R.C.S.Ed. who died last year. When estate is realized there will be an income of about £45 per annum. Applicant asks help with daughter's school outfit and expenses. Voted £20.

Three children of M.D.Ed. who died in 1916. Only income £15 per annum, and uncles contribute £100 per annum. They live with a grandmother and an aunt. The Fund has helped with the maintenance to the extent of £93 during the last eight years, and voted a further £18.

Daughter, aged 67, of M.R.C.S. who died in 1885. Applicant is one of a family of eleven children and supported herself until 1919, when, owing to the war, her employers closed down. Unable to obtain another post she now lives with a married sister and helps her in the house, but the sister can ill afford to keep her. Relieved three times. Total £54, and now voted £26 in twelve instalments.

M.D.Ed., aged 72, is bedridden and supported by his brothers, but they are unable to do more, and the Fund was approached for a grant for pocket money. In 1925 the Fund voted £17, and now a grant of £18 in twelve instalments has been made.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, K.B.E., M.S., at 11, Chandos Street, London, W.1.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second-hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 58, Great Marlborough Street, W.1

found out about exhausting disease or pigmentation of the skin. Yet the connexion between symptoms and *post-mortem* appearances was apparent to him, and when pointed out was recognized by all. William Jenner's work on typhoid fever was equally remarkable and convincing. Both these investigators made their discoveries in the course of medical practice, and there seems no reason to despair of future discoveries at the bedside, as was shown by the late Sir James Mackenzie, who while engaged in busy practice in an industrial town found time and opportunity to use his clinical acumen in the study of heart disease, and almost revolutionized our outlook on these maladies, and especially on their prognosis, a knowledge of which is of such vital importance to the patient and his relations. Such opportunities will no doubt be less frequent than in the past, but, as the Regius Professor at Oxford reminds us in a striking simile, while it is true that the alluvial gold may have been washed out by the primitive methods of the past, yet the modern clinician is much better equipped for research than his medical forefathers, and may yet discover deep-lying deposits of precious metals. He concluded his address with a most apposite quotation from Ecclesiasticus. May we offer him in return a quotation from the same ancient fountain of wisdom? "For of the most High cometh healing, and he shall receive honour of the king. The skill of the physician shall lift up his head: and in the sight of great men he shall be in admiration" (Ecclesiasticus, xxxviii, 2-3).

TAXATION OF SCIENTIFIC INSTITUTIONS.

In a paper on the taxation of scientific institutions contributed to the August issue of the *Journal of the British Science Guild*, Colonel W. A. J. O'Meara has collected together many judicial decisions in a manner which throws much light on this important but little known subject. He points out that not only income tax, but also local rates and corporation duty (the tax levied on undying corporations as a set-off to their escape from death duties) may be affected. At the present level of rates and taxes the title to exemption is one of great value. Unfortunately, as the list of cases which have been before the courts shows only too well, that title is hedged about by stringent conditions, and the central and local administrations are not likely to acquiesce in any claim unless it is technically flawless. The local rating exemption clause, in the statute of 1843, is too discursive for citation, but the income-tax clause will serve as typical. Rule VI, Schedule A, provides for an allowance of "the amount of the tax charged on any building being the property of any literary or scientific institution and used solely for the purposes of that institution, in which no payment is made or demanded for any instruction there afforded by lectures or otherwise. . . ." The stringent nature of the conditions attaching to the exemption are fairly apparent, but as an illustration the case of the Royal College of Surgeons of Edinburgh may be quoted. On an appeal in 1892 the court held that, as the main objects were professional, although it promoted the advancement of science incidentally, the college was not a "scientific institution" for the purpose of the rule. In that case Lord McLaren suggested that the objects and practices of such an institution would include meeting for the discussion of subjects of science, publication of papers, and the making of grants to individuals who undertake scientific research, but he distinguished such a hypothetical institution from the one with which he was dealing. The claim in 1857 of the Royal Medical and Chirurgical Society for exemption from rates met with a like fate, though for a different reason; in that case "the court held that the society was one established for the purposes of science exclusively, but as part of its premises were not exclusively occupied for the purposes of the society the exemption as claimed could not be supported." In 1899 the Royal College of Surgeons of England claimed exemption from corporation duty, but was unsuccessful. The fact is that exempting legislation is too frequently designed on what we may perhaps call the neck-or-nothing basis. If premises are used "solely" as scientific institutions, or if income is held on trust and is applicable to charitable purposes "only," certain allowances are given in respect of the entire premises or the whole of the income so applied; but if, say, 10 per cent. of the premises or income is applied to other purposes, however praiseworthy, the remaining 90 per cent. has to bear its full burden of taxation. We can find no justification for such a distinction other than that founded on the administrative simplicity of the present system. Scientific research and discussion must surely be more beneficial to the community when linked with practice by being organized and diffused through the agency of a professional association; and yet it is precisely this living connexion of theory with practice which seems to lead to the refusal of claims to relief from taxation. Colonel O'Meara fears that a definition of the expression "charitable purposes" by statute, as proposed by the Chancellor of the Exchequer, may curtail the existing allowances. It is surely not too much to hope that, however narrow the gate of exemption may be made, *all* institutional income devoted to scientific or charitable purposes will be allowed to pass through, whether it represents the whole or only a part of the total income of the society. If that change were made any possible tightening up of the statutory definition might be viewed with equanimity.

THROUGH OTHER EYES.

A tribute to the success of the Annual Meeting at Nottingham, and an appreciation of the present standing and aims of the British Medical Association appeared in the issue of the *Journal de Médecine de Bordeaux* dated September 10th-25th. It is by Dr. René Cruchet, professor of pathology and general therapeutics in the University of Bordeaux, who made a communication to the Section of Medicine at Nottingham on his experimental study of blood transfusion in man and animals; this paper we shall publish in a later issue with the proceedings of the second day of the Section. He took advantage of his brief stay in England to pay a visit to the house of the Association in Tavistock Square, and his abiding interest in research led him to investigate also what might have been called the circulatory system of the Association, were it not that the title of his article in our Bordeaux contemporary is "*Affaire de mentalité*." He recalls with a touch of sadness the fact that societies for medical defence and co-operation were in existence in France at the time when the British Medical Association was born, but, though these French societies united in 1841, the resulting organization has been gradually failing in strength and in its representative character. This decline he attributes to its fixation to a tradition, and the consequent failure to develop conformably with its changing environment: a failure especially regrettable now that individualism in medicine is in danger of being lost in syndicalism. Viewed through his eyes the happier lot of the British Medical Association is due to our recognizing that what we may lack individually, as compared with our French colleagues, has been more than compensated by our greater genius for developing *esprit de corps* and *esprit de suite*. So, while in France readjustment of

conceptions, and his view does not seem to have found general acceptance by neurologists since it was first put forward in 1920. The clinician is prepared to realize that, as Dr. Head's work shows, the defects manifested as a result of disease do not necessarily indicate the elements of which normal speech is composed; also that pure forms of "motor," "auditory," or "visual" aphasia are rare or possibly non-existent. But he will be reluctant to abandon these terms as indicating broadly certain clinical types of speech affection which have a localizing value in cerebral disease. Dr. Head classifies these affections on a psychological basis into verbal, syntactical, nominal, and semantic aphasia; for the full meaning of these terms his work must be consulted. He insists that in disease speech is affected as a whole and is not divided up into the elements of which it is composed. Further, in a patient suffering from aphasia in any form, the capacity to carry out a task varies directly with its complexity, or what Hughlings Jackson calls its "propositional" value.

As a pure study of speech affections Dr. Head's work is of the deepest interest and value, and the publication of these volumes marks an important event in the evolution of our knowledge of cerebral function. Dr. Head says the results he has obtained "are of little direct practical value to the physician." This may be true, and it seems unlikely that his nomenclature of aphasia will become common currency; but everyone interested in cerebral function must study these volumes, and cannot fail to obtain much fresh light and stimulus. In particular the clinician will be led to avoid the mechanistic conceptions which have prevailed too much in the past.

THE SCIENCE OF CLINICAL MEDICINE.

The custom of delivering addresses to the newly entered students of the medical schools at the beginning of each winter session is at least as old as the days of Abernethy, whose discouraging greeting has been so often quoted. Of late years the custom has been discontinued at some schools, but as long as distinguished members of the profession are prepared to deliver such addresses as we print in this issue, so long will the custom survive. The occasion affords an opportunity, not only for the offer of good advice to the student, but also of placing before the lay public some facts concerning the profession, its difficulties and its aspirations, of which the public are for the most part woefully ignorant. This year we are able to congratulate ourselves on the circumstance that those two great twin brethren of medicine, the Regius Professors in the two ancient English universities, have given us the benefit of their wisdom and their experience.

In the address on "The science of clinical medicine" which Sir Archibald Garrod delivered at the Westminster Hospital he did not seek refuge in side issues, or attempt to evade the difficulties of his task under cover of a cloud of smooth generalities, but boldly faced one of the most important problems in the conduct of medical practice nowadays. In claiming that clinical medicine is as much a science as bacteriology or biochemistry he will doubtless have the approval of most, if not all, of our readers, as well as of a recent President of the Royal Society. In recommending the student to turn his attention to the laboratory Sir Archibald Garrod gave advice which should be valued and acted upon. The student cannot know too much of the ancillary sciences and studies upon which medical practice rests, but all the knowledge he may acquire will be of little use to him in the absence of that clinical experience which is required for successful diagnosis and treatment.

The highly technical skill needed in many laboratory tests and the time these occupy render a certain division of labour necessary in medicine, and some students are tempted by the precision and definition of the processes of investigation by means of the microscope, the test tube, and the culture medium to devote their whole attention to these instead of entering practice and coming into contact with what has been said to be the proper study of mankind. Though it must be admitted that some of the work of a busy practitioner may be tiresome, yet the bacteriologist in his laboratory also finds the repeated routine of examinations of blood and swabs and secretions dull and uninspiring, and his boredom is unrelieved by the contact with the humours, the weaknesses, and the heroism of his fellow creatures, which are continually displayed before the clinician.

It would be a great calamity if the view were to prevail that only the work of the laboratory and the study were worthy of the best intellects. Some time ago certain enthusiasts loudly proclaimed that there was no longer any need of the clinician, except as a humble collector of specimens, upon which the pathologist was to pronounce a diagnosis and prescribe the appropriate serum, antitoxin, or what not. In short, medicine was to be conducted on the principle of "You press the button and we do the rest." As Sir Archibald said, "the mere fact that a piece of work is done in a laboratory does not make it a scientific research," and, on the other hand, many of the processes by which an exact diagnosis is reached at the bedside are truly scientific.

Sir Humphry Rolleston, in his address at King's College Hospital, devoted himself more to the consideration of the careers open to qualified men, and of the course of study necessary to fit them for each, but, like his colleague and friend, he referred to the temptations to confine themselves to experimental and research work which are offered to those suitably gifted. Not only does the laboratory exercise a potent attraction on the lover of research, but the public health service also calls to those who would prefer to serve a public body and keep regular hours than be at the beck and call of all who seek their services and on duty all round the clock. To such as these Sir Humphry Rolleston pointed out how large a part is taken by general practitioners in the performance of public health duties, and stated, on the authority of Sir George Newman, that of the 1,450 medical officers of health 1,100, or over 75 per cent., are engaged in general practice. Whatever department of medicine, surgery, or pathology may be the ultimate destination of the student, he will do well when qualified to gain full experience of clinical work, especially if he aims at the public health service, in which intimate knowledge of the duties and difficulties of the practitioner, and a sympathetic consideration of them, are so important in the interest of the smooth working of hygienic regulations and their consequent efficiency. A common training as far as possible, and common experience among the sick, give the best guarantee of mutual understanding and help between the clinician, the medical officer of health, and the research worker or pathologist.

To those who think that the day of fruitful research by the practitioner outside the laboratory is past, the examples quoted by Sir Archibald Garrod should give cause for reflection. Probably the colleagues of Addison had thought that there was little more to be

treatment in Addisonian anaemia arsenic and hydrochloric acid are recognized as the most successful, splenectomy, after a comparatively brief period, has largely dropped out, and transfusion is losing ground. Recently two papers have drawn attention to the importance of dietetic treatment, and certainly deserve attention, for the basis on which the recommendations are made does not run counter to the present conception of the importance of the absence of hydrochloric acid in the gastric juice. Minot and Murphy,[1] after summarizing the various dietetic methods of treatment in the past, such as high protein content, a restricted fat content, and a vegetable and fruitarian diet rich in iron, give an account of the treatment of forty-five patients on a diet with an abundance of food rich in iron and purine derivatives, and proteins, particularly liver, much fruit and fresh vegetables, and relatively low in fat. The special diet consists of calf's or cow's liver 250 grams or more, beef or mutton 120 grams or more, vegetables at least 300 grams, fruit 250 to 500 grams, cream and butter 40 grams, if desired an egg, and milk 240 grams, and potatoes or cereals to make up 2,000 to 3,000 calories. The rationale of the diet is discussed at some length. The value of liver in regenerating the blood has been shown experimentally by Whipple and Robscheit-Robbins, and the nutritional value of liver is the same as that of red bone marrow, which has been used therapeutically in the past. There is some evidence that fats increase intestinal putrefaction, and so are undesirable; the vegetable ration is recommended on account of its iron content, and the good effect of strawberries in sprue, a disease in some respects resembling Addisonian anaemia, is noted, but the question of vitamins is only just mentioned. Patients placed on this diet rapidly improved both as regards symptoms, except those with subacute combined degeneration of the cord, and as regards the blood; thus patients with an average red count of 1,470,000 before the diet was commenced showed an average of 3,400,000 after a month, and in twenty-seven instances in which the diet was continued from four to six months the count averaged 4,500,000. The young reticulated cells in the blood are temporarily increased, and the icterus index of the blood serum falls. It remains to be seen whether or not the remissions in these forty-five cases will last longer than in a control series. In a research based on experimental observations Koessler, Maurer, and Loughlin,[2] while accepting the influence of achlorhydria in favouring the formation of haemolytic, myelotoxic, and neurotoxic bodies, believe that these are only able to pass through the intestinal wall and do damage when the cells of the intestinal mucosa and perhaps of the liver are altered by a long-standing deficiency in vitamin A (and perhaps also of B and C) due to improper feeding. A condition similar to Addisonian anaemia was induced in rats by a diet deficient in vitamin A. The diet recommended for the treatment of Addisonian and aplastic anaemia in man is especially rich in vitamins A, B, and C, and should be ample and of high calorie value: milk 1,500 grams, cod-liver oil 20 grams, cream 100 grams, butter 60 grams, two or three eggs, and 100 grams each of oranges, tomatoes, lettuce, spinach, meat (liver, kidney, sweetbread, or brain), and bread. Of the meats, liver and kidney contain the largest amount of vitamins A and B, and probably also some vitamin C. The authors insist on the administration of hydrochloric acid in increasingly large amounts, and also of yeast. Comparison of this diet with that recommended by Minot and Murphy shows a divergence as regards the fat intake, but it should be mentioned that Minot and Murphy considered that the low fat content of their diet was much less important than the character and amount of the protein. But though constructed on different logical grounds, the mode of action of Minot and Murphy's special diet—namely, liver, which is rich in vitamin A, and plenty of fresh fruit—may therefore merely be that it is a method of supplying the required quantity of vitamins.

[1] Minot, G. R., and Murphy, W. P.: *Journ. Amer. Med. Assoc.*, Chicago, 1926, lxxxvii, 470-76.
[2] Koessler, K. K., Maurer, S., and Loughlin, R.: Ibid., 1926, lxxxvii, 476-82

INTERNATIONAL PORT SANITATION.

A PARTY of medical officers concerned with the sanitary administration of ports in the Baltic, North Sea, and English Channel are at present in this country. The visit is opportune in view of the fact that a new international sanitary convention was signed in Paris last May by over fifty nations, covering practically all the chief ports of the world. This convention is the final outcome of a series of international conferences dating from 1851, when an attempt was first made to unify the quarantine laws in Europe. A number of other conferences were held and conventions signed, and in 1907 a central international health office was established in Paris to study the various conventions and to prepare for their amendment to meet new knowledge, new conditions of commerce, and new political circumstances. The convention of this year was drafted by that office, and is a very thorough revision of the international measures needed to prevent, in particular, the spread of cholera, yellow fever, typhus fever, and small-pox. With this new basis of international understanding it has become necessary for all port health authorities to overhaul their methods, and the League of Nations has therefore done very well to take advantage of the financial assistance of the Rockefeller Foundation to extend to this subject the interchange system which, as our readers are aware, has been applied on many occasions during recent years to other aspects of public health administration. The party arrived at Southampton on Monday last; there they were received by the mayor and Dr. Lauder, medical officer of health for the borough and port. They were shown the disinfecting station, the V.D. clinic, the infectious disease hospital, and the docks. On Tuesday they passed through London, and were received at the Ministry of Health, where Sir George Newman delivered an address and Dr. H. A. Macewen, one of the senior medical officers of the Ministry, gave an outline of the arrangements for port sanitation in this country. Afterwards the members of the party were entertained by the British Government at a luncheon, over which Sir H. Kingsley Wood, M.P., Parliamentary Secretary to the Ministry of Health, presided, and on the part of the Government extended a warm welcome to them. Dr. Jitta, president of the Health Council of the Netherlands, and one of the representatives of the Health Committee of the League of Nations, made a suitable reply. In the afternoon the party went to Liverpool, where they spent two days and were shown the general arrangements of the port. They made a trip up the River Mersey, and witnessed a demonstration of rat-catching and of various methods for the destruction of rats. Visits were also paid to the cold stores and warehouses, and to the isolation hospitals of the borough and port sanitary authority. On the following day the party visited the immigration hostel, the V.D. department of the Seamen's Hospital, and the School of Hygiene. After being entertained at lunch by the Lord Mayor they returned to London, where, according to arrangement, Dr. W. M. Willoughby, medical officer to the Port of London, was to act as guide in an inspection of the system of boarding vessels at Gravesend, and on visits to the Port Sanitary Hospital, and to the warehouses and cold stores at the Royal Albert Dock. On Saturday, before leaving for Geneva, the party were to see the museums of the School of Tropical Medicine and the Royal Sanitary Institute, and to be entertained at luncheon at the Guildhall. The countries represented were Belgium, Denmark, Finland, France, Germany, Latvia, Lithuania, the Netherlands, Norway, Sweden, Russia, and the Free City of Danzig.

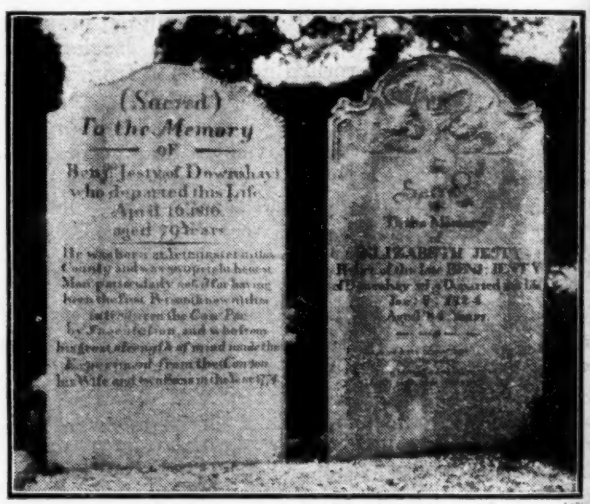
the profession to new demands takes the form of short jumps, there is, he finds, in England a gradual daily adaptation and a patient unwearying struggle, due (to use his own metaphor) to the existence of a frame which remains the same, while the picture it contains is retouched according to the needs of the time. To its service in this important respect he attributes the growth of the British Medical Association. Elsewhere in the same issue of our contemporary Professor Cruchet discourses at length upon the Nottingham meeting, and indicates the evidence for his belief that the Association truly represents the medical body in its relations to the community and to Parliament. Mr. Hogarth's Presidential Address particularly appealed to him, as did the way in which medico-political problems were considered. In acknowledging Professor Cruchet's warm congratulations it may be added that, besides the privilege of welcoming him personally in Nottingham and in London, we were also, as he suggests, conscious of the honour of receiving a representative of the renowned University of Bordeaux, whose past fame is being augmented in our day by the researches of its living members.

THE CHINA MEDICAL ASSOCIATION.

The eighteenth biennial conference of the China Medical Association was held at Peking from August 31st to September 8th. This association, previously well known as the China Medical Missionary Association, has now widened its basis, and the reports of the various councils and committees submitted to the general meeting indicate the extent of the organizing and administrative work that is being undertaken. The previous conference in Hong-Kong, in the early part of 1925, adopted a new constitution which accompanied the alteration of name; it is stated that the changes then made have proved to be satisfactory, despite the fact that in the short period of rather over one year the association has been deprived of the services of Dr. S. Cochran, the president; Dr. W. C. Grosvenor, the vice-president; and Dr. E. M. Merrins, the editor of the *China Medical Journal*, which is the monthly periodical of the association. One committee has been engaged upon the proposed registration and grading of hospitals, and has attempted to define the minimum requirements for registration, including regulations dealing with the professional and non-professional staffs, the provision of suitable wards, operating theatres, pathological laboratories, dispensaries, and residential accommodation, together with the use of the hospital records prescribed by the association, or of approved equivalents. During the last five years the work of the association has received substantial financial support from the China Medical Board of the Rockefeller Foundation. The clinical side of the conference was divided into eleven sections, and abstracts of numerous papers there read were combined and published in a small pamphlet. Malaria was discussed by Dr. E. C. Faust, who dealt with its general prevalence; by Dr. K. H. Li, who defined the part to be played by mission hospitals in research, prophylaxis, and treatment; and by Drs. H. E. Meleney, C. U. Lee, and K. L. Chang, who described a preliminary survey of the distribution of anophelines in the neighbourhood of Peking. Reports of amoebic abscesses of the liver were given by Drs. A. I. Ludlow and G. W. Van Gorder. The subjects for discussion in the obstetrical and gynaecological section included eclampsia, contraception, ectopic endometrial tissue, and the use of the blood sedimentation test in the puerperium. The section of hygiene and public health considered the maternity problem in China, venereal diseases, public health, nursing, and child mortality. In connexion with the conference numerous excursions and entertainments were arranged.

BENJAMIN JESTY'S GRAVE.

The Jenner Centenary Number of the British Medical Journal, published on May 23rd, 1896, besides much other historical matter, included a note on the precursors of Jenner. The milkmaids in Gloucestershire and elsewhere had found out for themselves that cow-pox was a safeguard against small-pox before the insight and patient labour of Jenner transformed a piece of folklore into a scientific truth and made the medical profession all over the world receive it as such. Nor was he the first to inoculate cow-pox with the object of giving protection against small-pox. The first vaccinations of which there is any record were performed by Benjamin Jesty, a farmer of Yetminster in Dorset, who in 1774 inoculated his wife and two sons, aged respectively 3 and 2 years. He himself had had cow-pox before by contagion from the cow. His vaccinations were successful, and his family remained proof against small-pox inoculation and contagion. Again, in 1791 Peter Plett, of Schönwaide in Holstein, successfully vaccinated some children. Neither Jesty nor Plett, however, seems to have followed up the matter; hence nothing came of their



happy thought. They had a glimpse of the truth, but they passed away and left no trace. It was on May 14th, 1796, that Jenner carried out his first inoculation with cow-pox. We have lately received from Dr. C. H. F. Johnston of Frome an interesting photograph, taken during his holiday this summer, of the tombstones of Jesty and his wife at Worth Matravers in Dorset. The inscription on Benjamin Jesty's tombstone runs as follows: "Sacred to the memory of Benjm. Jesty of Downshay, who departed this life, April 16th, 1816, aged 79 years. He was born at Yetminster in this county, and was an upright honest man, particularly noted for having been the first person (known) that introduced the cow-pox by inoculation, and who from his great strength of mind made the experiment from the cow on his wife and two sons in the year 1774." The other tombstone says that his wife Elizabeth died on January 8th, 1824, aged 84 years.

DIETETIC TREATMENT OF PERNICIOUS ANAEMIA.

When there are many forms of treatment for a disease the results of any one are usually disappointing. Pernicious or Addisonian anaemia (as the Guy's school, who, following tradition, have, under the wise leadership of Dr. A. F. Hurst, done so much lately to advance our knowledge of the disease, piously prefer to call it) has apparently become much commoner; whereas chlorosis, in which the treatment by iron was so eminently successful, has become a much sought after clinical curiosity. Of the methods of

Opening of the Winter Session.

THE FUTURE OF WOMEN IN MEDICINE.

Address to the London School of Medicine for Women.

BY

SIR WALTER FLETCHER, K.B.E., M.D., D.Sc., LL.D., F.R.S.,

Secretary of the Medical Research Council.

AFTER paying a warm tribute to the work and character of the late Dr. J. G. Adami, who was to have delivered the introductory address, Sir Walter Fletcher said:

Our chief object, I take it, to-day is to greet and cheer your members now beginning work here and to welcome them into the common fellowship of work and study in this place. To do that is both easy and agreeable, and, if I am to be spokesman, may I in your name congratulate your freshmen upon entering their apprenticeship to a profession which has so much to claim and so much to offer for any who join it with the right qualities of mind and heart.

But it is expected that our greeting should be coupled with some kind of friendly admonition or advice, and it is here I feel that the difficulty begins. I am not troubled by the general dubiety of giving advice. You will remember Lord Morley held that there were two kinds of fool in the world—those who give advice and those who take it. We can evade that condemnation by giving, not direct advice, but helpful information. Yet what accurate information about the coming years can we now give to inquiring beginners? What the freshman now seeks, surely, is information about the probable professional opportunities open to her in the early and distant future, so that she may take the best way to making the most of her powers. The difficulty of helping her is the difficulty of forecasting the future, and I think that the problems here are more pressing and more puzzling at the present time than ever in the past. We are faced by two sets of problems: those which belong to all medical education, and those special problems which belong to women as such.

General Problems of Medical Education.

The very rapid development of science in the past generation and its growing application to medical practice are making it year by year more difficult to predict the course which medical practice is likely to follow in its next progress and to direct the lines of medical education more fitly to their ends. Great changes are taking place, and the rate of change is likely to become more rapid rather than more slow. The progress of surgery, of which the development in the last generation has been so phenomenal, seems likely now to follow the law of diminishing returns and to be approaching something like stability. If science indeed could give us preventive control over cancer, the volume of surgery would at once be immensely reduced. It is not very bold, again, to think that the physician is likely to find his powers and scope changing rapidly in many ways as we lay hold of the elements of a scientific knowledge of nutrition and begin to use its enormous latent powers. The work of preventive medicine in all its branches is in a period of great expansion, and many new forces are now at work which will open up the possibilities of extending this throughout the Empire and of removing the long-standing waste and disgrace of preventable but unprevented disease under the British flag. The growth of biochemistry holds obviously untold possibilities, some almost within our grasp, which, when applied to human affairs, may deeply affect the future of medicine, and indeed may bring startling changes to the whole of our social structure. In large and in detail the problems of the kind thus briefly indicated must be in the minds of all those who are serious about medical education.

Problems of Women's Medical Education.

All these general considerations, of course, are relevant to women's education no less than to that of men. But I would venture to urge now that there are probl[illegible] of women's education in medicine which are not t[illegible] problems as those for men, and that women should [illegible] the present assumption that their medical education sh[illegible] follow exactly the lines laid down for men, and that their outlook towards their future practical work should be the same. Hitherto the medical education of women has followed in almost every detail the traditions and practice evolved for men. This has been an historical necessity. The early pioneers of women's medical education had no choice. I need not in this place touch on the history of this great movement, so well known to all here. It was a movement some of whose great leaders have their names enshrined for ever in this school. "*Si monumentum requiris circumspice.*"

The battle now, however, has been fought and won, and almost complete freedom has been gained for the future development of women's medical education. The time seems to have come when close parallelism at every stage of the medical education of men and women should no longer be assumed. Better reasons at least must be found for it than custom and convenience, which sprang from older necessity. It may be that to maintain too close a parallelism is wasteful and even disastrous. As biologists we cannot fail to be awake to this. "Male and female created He them." We should be slow to think that the very best powers of a woman can be developed and employed by following exactly the same course and by working in just the same fields as those in which the best powers of a man may be brought out. We must believe that the highest service of each will be given in differentiation of function, and that co-operation between man and woman, each working in the best sphere, is to be far preferred over rivalry. Closer adaptation of the nature of the work to the qualities of the workers by no means involves any inequality or any lowering of intellectual standards. On the contrary, it is likely to call for higher standards on each side and to give room for effort which will be more effective because it will be more intensive.

I touch upon these problems here with the greatest diffidence. I am much more certain of their existence and importance than I am of the right way to their solution. When I speak of divergence or differentiation in the educational courses to be followed by men and by women, I am thinking, of course, of the whole period of training, and more especially of the post-graduate training. How far, at what points, or if at all, there should be a difference in the minimum courses for qualification are problems not now considered. I am thinking rather of what a woman student should be inclined or recommended to select than of what she should be made to do by regulation.

Fields of Work for Women.

In this matter we should think first of the fields of work specially appropriate to either sex, and, without looking at all closely now, to see where the exact boundaries of the fields may lie. It seems to me obvious that the rough and tumble, if I may use those words, of general practice make it much less suitable as a general rule for women than for men. It seems evident, too, that only exceptional women are likely to join with men on equal terms in specialized surgery. It will be long, to give another instance, before medical work in the tropical and many other parts of the Empire will be so suitable for women as for men.

On the other hand, there are large fields of service calling peculiarly for the special gifts of women, in which it seems to me that they could give far more abundant and more progressive service than is given now. I think here specially of the study of nutrition, of children's diseases, and of maternity in all its phases. Here are immense fields offering problems of the greatest interest, and giving opportunities for service of inestimable value both to the individual and to the nation. Closely linked with these are the possibilities of work in preventive

SCANDINAVIAN NEUROLOGICAL CONGRESS.

The third Scandinavian neurological congress was held in Oslo on September 17th and 18th, under the presidency of Professor G. H. Monrad-Krohn. The first day was entirely devoted to neuro-syphilis, a paper of considerable interest being contributed by Professor H. Dahlström of Stockholm, who stated that quaternary syphilis was exceedingly rare amongst patients treated without the use of mercury according to the principles of the late Professor Boeck of Oslo. Subjects dealt with on the second day included the relation of epidemic encephalitis to epidemic parotitis, ventriculography and cerebral operations, and the physiology of binocular vision. One speaker claimed that a disease apparently identical with Huntington's chorea had been observed and described by a local practitioner in Norway many years before Huntington. It was decided that the fourth Scandinavian neurological congress should be held in Helsingfors in 1929.

SIR NEVILLE HOWSE, V.C., K.C.B., K.C.M.G.

Among the delegates to the British Imperial Conference is a distinguished member of the medical profession, Major-General Sir Neville Reginald Howse, who has been Minister of Defence and Health in the Australian Commonwealth for more than a year, and a member of the House of Representatives since 1922. Sir Neville Howse, who was born in Somerset in 1863, is the son of the late Dr. Alfred Howse; he received his medical education at the London Hospital, and obtained the M.R.C.S. diploma in 1885 and the F.R.C.S. in 1897. He served in the South African war from 1900 to 1902, receiving the Queen's medal with six clasps and the King's medal with two clasps. In 1901 he was awarded the Victoria Cross for conspicuous bravery during the action at Vredefort on July 24th of the previous year, when he went out under a heavy cross-fire and picked up a wounded man and carried him to a place of shelter. During the late war he was principal medical officer to the Australian Naval and Military Expedition to German New Guinea and the Pacific Islands, and held the appointments of A.D.M.S. 1st Australian Division, D.M.S. Australian Imperial Force, and D.G.M.S. Australian Military Forces. He served with the Australian army during the Dardanelles operations, and received the C.B. in 1915; he was promoted K.C.B. in 1917, and appointed K.C.M.G. in 1919. He was an Australian representative at the League of Nations Assembly in 1923.

MEDICAL SOCIETY OF LONDON.

The programme for the first half of the 154th session of the Medical Society of London has now been issued. At the annual general meeting on Monday, October 11th, the Fothergillian Medal will be presented by the new President, Sir Humphry Rolleston, Bt., to Sir Frederick Gowland Hopkins, F.R.S., professor of biochemistry in the University of Cambridge, and at 9 o'clock the Annual Oration (postponed from May 10th owing to the general strike) will be delivered by Sir Berkeley Moynihan, Bt., President of the Royal College of Surgeons of England, whose subject is "Before and after operation." The Oration will be followed by a conversazione. A clinical evening will be held at 8 o'clock on October 25th, and the three following meetings will be devoted to general discussions, all beginning at half-past eight. On November 8th the subject of "Sternal pain" will be introduced by Dr. John Parkinson and Mr. A. J. Walton; on November 22nd "Recent advances in the treatment and diagnosis of bronchiectasis," by Dr. Clive Riviere and Mr. J. E. H. Roberts; and on December 13th "Recent advances in the etiology, diagnosis, prophylaxis, and treatment of the exanthemata," by Dr. J. D. Rolleston and Dr. R. A. O'Brien. The Lettsomian Lectures, on "The surgery of the spinal cord and membranes," will be delivered by Mr. Donald Armour.

THE TERCENTENARY OF FRANCIS BACON.

The tercentenary of Francis Bacon (1561-1626) was celebrated at Cambridge on October 5th by a special degree congregation, a large garden party in the grounds of Trinity College, and a commemorative lecture in the Senate House by Dr. C. D. Broad, Fellow of Trinity, on the philosophy of Francis Bacon. The congregation was presided over by the Earl of Balfour, Chancellor of the University, who conferred the honorary degree of LL.D. on Dr. W. S. Holdsworth, K.C., Vinerian Professor of English Law at Oxford, and that of Sc.D. on Sir Ernest Rutherford, O.M., P.R.S., Cavendish Professor of Experimental Physics at Cambridge, thus commemorating Bacon's eminence in law and in natural philosophy. The guests at the garden party were received by the Master (Sir J. J. Thomson, O.M.) and the Vice-Master (Dr. St. John Parry) of Trinity, and in the College Library rare first editions of Bacon's works were on view.

A VETERAN OF LARYNGOLOGY.

Professor E. Schmiegelow of Copenhagen celebrates his seventieth birthday on October 13th, and retires from active service as chief of the oto-laryngological clinic at the Rigshospital (University of Copenhagen). His friends in many countries are marking the occasion by presenting to the clinic a medallion portrait of the professor in bronze. The Royal Society of Medicine will be represented by Sir StClair Thomson, Past-President, who will make a contribution to the meeting of the Danish Oto-Laryngological Society to be held on October 12th. Addresses will also be given by Professor Burger (Amsterdam), Professor von Eicken (Berlin), and other European leaders, who will unite in doing honour to the doyen of Danish oto-laryngology. Professor Schmiegelow was a pioneer in his subject. He studied under Morell Mackenzie at the Throat Hospital in Golden Square, and he has been a frequent visitor to this country, where he has many admirers and friends.

The Harveian Oration will be delivered before the Royal College of Physicians of London by the President, Sir John Rose Bradford, K.C.M.G., F.R.S., on Monday, October 18th, at 4 o'clock. The annual sermon at the Church of St. Mary-le-Bow, re-established under the scheme of the Charity Commissioners for the administration of the Sadleir Trust, will be preached at 11 a.m. on the same day.

The Lloyd Roberts Lecture will be delivered this year on Friday, November 19th, at 5 o'clock, at the Royal College of Physicians of London, by the Very Rev. W. R. Inge, D.D., Dean of St. Paul's.

The museum demonstrations at the Royal College of Surgeons of England will begin on Friday, October 15th, when Sir Arthur Keith, F.R.S., will demonstrate specimens recently added to the museum. His second demonstration, on the following Friday (October 22nd), will be on the anatomy of the sacro-iliac region and its application to practice; and his third, on Friday, October 29th, on disorders in the growth of bone. Mr. C. E. Shattock's demonstrations, to be given on Mondays, October 18th and 25th, will deal with surgical conditions of the lymphatic gland, and of blood vessels; his third demonstration, on November 1st, will be on scrotal tumours. The demonstrations will be given at 5 p.m. on each day.

handicapped—but, of course, not deterred—by a complete ignorance of the subject he criticized, and perhaps for that reason he was typical of a great mass of public opinion which the profession would do well to recognize as dissatisfied with many of the circumstances attending the practice of medicine to-day. Mr. Shaw wrote that the General Medical Council had become a trade union of the worst type, deliberately addressing itself to the antisocial task of preventing the public from calling in an unregistered practitioner who was in competition with those on the *Register*; he also condemned as obsolete the training maintained by the General Medical Council, and implied that it was ill designed to meet the needs of the public and compared unfavourably with the training—if that word could be used—in some branches of unqualified practice.

The Medical Curriculum.

In rebutting these criticisms, Dr. Little pointed out that the period required for entrance into the medical profession was more than twice as long as that required for entrance into any other. Demands were constantly made for new additions to the curriculum. It was quite certain, whatever readjustments might be advisable, that the teaching in anatomy and physiology could not be shortened, for this was the basis of scientific medicine. Again, the General Medical Council had wisely placed in the very forefront of its resolutions of 1922 with regard to professional education that throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspects of medicine. The same resolutions recommended that a minimum period of three years—in practice more usually four—should be available for clinical studies. It was upon this clinical training that the great English school had founded its prestige. In a conversation he had had with the adviser to the Carnegie Foundation, that very astute gentleman declared that in the practical art of medicine the British medical contingent in the war far excelled that of every other of the belligerent armies, including his own.

It was precisely in the preposterous neglect of clinical study and the lack of opportunities for pursuing it that the unqualified practitioners compared so very unfavourably with the graduates of the orthodox medical schools. In the United States the largest osteopathic college, with 1,000 students, was situated in a small frontier town in Missouri with a population, including the students, of 4,000. Presumably the students found their clinical material in each other! Compare this with Oxford and Cambridge. Each of these universities was in a town of some 60,000 inhabitants, and yet they regarded the local clinical material as inadequate, and the medical students were sent to London schools for their clinical work.

The curriculum was growing with every decade, and the minimum period of study to secure qualification was stretched well into seven years. Notwithstanding this, the public journals clamoured for more subjects to be included. The *Times* had gravely urged the inclusion of osteopathy and psychology. There was no finality visible in the burden to be laid on the coming student generation. Signs, however, were not wanting that in this matter of the curriculum the breaking point was being approached, and the encouragement given by an unthinking public to unqualified practice was hastening that consummation. If an osteopath, after a period of very imperfect education in the medical sciences, ranging from one to four years, was given, as some desired, the privileges now accorded to medical men with their seven years of rigorous professional study, who would be fool enough to take the severer course?

Unqualified Practice.

Great Britain stood nearly alone—the only other notable exception was Germany—in the encouragement which its Legislature gave to unqualified practice. In this country a man might pursue unqualified practice without penalty unless, indeed, he falsely laid claim to titles and qualifications and some person was public-spirited enough to take the matter up. And when to this was added the publicity to be derived from advertisement, denied to the qualified man, surely the dice were loaded against the latter. And all this time medical education tended to be more and more extended. There had never been a period when the scientific preparation for the practice of medicine was so necessary. There was an ever-reaching public demand for new subjects of study. But if the public refused to differentiate the finished product of all this preparation from the shoddy result of a pretentious imitation thereof, the genuine product could not be maintained. The remarkable enlistment of new recruits to the profession following the war had passed its high-water mark. No doubt the incomparable human interest which the practice of medicine involved would, for some time at least, attract the best class of student, but it might be that a day would come when the supply of scientific doctors would give out, and their place would be taken by money-grubbing and imperfectly educated quacks ever seeking a back door of entry into the fold. It might be that orthodox—that is, scientific—medicine would be replaced by a system which had been euphemistically described as "drugless medicine and bloodless surgery." Imagine the practitioner of such a system confronted with any one of the four great scourges of humanity—malaria, tuberculosis, cancer, syphilis!

Unfortunately, there was no indication of public support for the curtailment of the privileges of the unqualified. Nowhere had the quacks more friends than in the House of Commons, to judge from his personal experience when bringing forward his motion in February last for the regulation of unqualified practice. In that very interesting debate it was amazing to find it assumed in speech after speech that the advances in medicine had come invariably from extra-professional sources. The public, in fact, were unaware of the immense strides in medical science during the last thirty years, which Professor Starling had described, not as a renascence, but as a new birth. The medical discoveries in that period had been far more often made by men in the medical profession than by men outside. True, Pasteur was constantly being cited, but it was Lister who saw the full meaning for surgery of Pasteur's discoveries, and without Lister Pasteur might very well have gone unheeded by medicine.

Doctors and the Press.

The press, Dr. Graham Little continued, had conducted a very insistent campaign for removing the restrictions which now prevented medical men from writing for newspapers under their own signatures. The General Medical Council was often unfairly saddled with censure for these restrictions. It was really bodies like the British Medical Association which exercised pressure to prevent covert advertising to which such communications might lead. The press could not be wholly disinterested in this matter. It was obviously to its interest to get hold of good "copy," though it was difficult to think that the essays in the obvious or the sheer balderdash published under "Health Notes" could be acceptable to any intelligence, however feeble. The activities of the New Health Society did not convey the impression that the writers empanelled for its purposes were among the inspired prophets of our times. Not long ago one of the teashops blossomed out with the announcement that the President of the New Health Society and his band of experts had contributed a scientific menu for the athlete. The menu was provided in the teashops specified, but an examination by a medical writer of the items of this "food for heroes" disclosed no very great variation from the bills of fare provided by other teashops. Sausages and buns figured largely. The printing of the photograph of the distinguished president added materially to the amusement of the public and the amazement of the profession. But it was obvious that this was not the way to approach a really serious problem—the problem, namely, of disseminating by the very potent influence of the press really sound and expert information which might be actually useful for uninstructed persons. This question was to be fully discussed at a meeting of the St. Pancras Division of the British Medical Association on October 12th, and he would leave it in far more capable hands than his own.

The General Medical Council.

With regard to the General Medical Council, a statutory body, it was evident that Mr. Bernard Shaw, like so many laymen, confused it with the British Medical Association.

medicine, in the study and management of child welfare, whether in the city, in the school, or in the factory, and in all the applications of physiology and medicine to the lives of women and children engaged in industrial work.

I said earlier that the first beginnings of our knowledge of nutrition were already promising to affect deeply the practice of medicine. Is not this a direction in which women should strive to make themselves, so to speak, mistresses in their own house? It happens here that much of the basic knowledge we are beginning to collect has been gained in the laboratory by medical women and by non-medical women. Miss Chick and her colleagues at the Lister Institute has given invaluable service here by work, more particularly, upon the several vitamins. They gave help of the first importance to our naval and military forces during the war by their work upon the anti-scurvy vitamin (C) and the vitamin B. Miss Chick again and her colleagues, Miss Hume and Miss Henderson Smith, together with Dr. Dalyell and Dr. Helen Mackay of this school as clinicians, made valuable studies of rickets in Vienna from 1919-1922, and to this expedition we owe, among other things, the first experimental demonstration that ultra-violet light and the vitamin of cod-liver oil are interchangeable in the prevention or cure of rickets in babies. In the past year Miss Chick, with Miss Roscoe, has shown, by refined and laborious experiments, that the growth vitamin A, and the antirickets vitamin D, for their abundance or deficiency in cow's milk depend upon the diet of the cow and its access to sunlight. The growth vitamin depends solely upon the supply of vitamin in the cow's fodder. The cow can only transmit it. But the antirickets vitamin, though it may be supplied in the fodder and transmitted by the cow, may also be manufactured afresh in the cow's body under the influence of sunlight. When we think of the dependence of our industrial populations upon the milk of cows commonly stall-fed and kept in the dark, we can realize the inestimable practical value of new knowledge of this sort.

Another woman, again, and another non-medical woman, Mrs. Mellanby, in following up her husband's pioneer work upon rickets as a deficiency disease, has revealed a fundamental relation between the diet before and during dentition and the formation of teeth, the effects of vitamin deficiency being shown both in damage to their general structure and arrangement and in failure of their minute, invisible architecture—that prismatic architecture of the enamel which gives it hardness and its resistance to disease. It seems likely that this discovery will not only transform our outlook on the national problem of dental decay, but give us the true key to its practical solution.

All these studies and others like them give ground for confident hope of an immense increase in our practical powers of repelling disease and of increasing the happiness and the beauty of our people. Research here is costly, painful, and slow, yet the due application in effective practice even of the little we already know seems often to be slower still.

The new knowledge of the vitamins of milk which we owe to Miss Chick and her colleagues has immediate relevance to the problems of human lactation, to the treatment of the expectant and nursing mother, and the management of breast-feeding. This seems to be a field crying aloud for the better attention of women. If the truth were known, I venture to think that my sex has done far too little in the proper advocacy of breast-feeding; men have tended, I am afraid, to throw their influence in fact, if not on paper, rather on the other and the wrong side. But even with the better knowledge and the better weapons that research has given, a man, after all, can only know and apply the physiology of lactation. A woman may know both its physiology and its psychology, and without a knowledge of both the physician is incomplete.

The application of nutritional study to medical practice, whether curative or preventive, surely offers a field of work peculiarly fitted for women. It is not a soft option. It calls for arduous work and highly technical study; it offers problems of great intellectual interest, and at the same time promises high rewards in practical usefulness. In spite of this, however, it does not seem that any significant body of medical women are turning their special attention in this direction.

This seems in itself to be a phenomenon worth examining. I would ask you to allow me to touch here upon a point which may possibly have some relevant connexion with it. I will put a bold question, and hope that you may forgive my candour. Why is it that women following a communal intellectual life are so prone to neglect both the quantity and the quality of their own food? It is notorious that, speaking generally, women's colleges and other institutions governed by women provide food which is often inadequate in amount, badly chosen, badly cooked, and badly served! All men who have sisters or daughters at college or some similar place become aware of this. It is not enough to say that women are less greedy than men. The deficiencies I have in mind often take the diet below the minimum for due nourishment, while bad cooking is at least as wasteful and indefensible as greed itself. I venture myself to think that the phenomenon I describe, now perhaps beginning to disappear, was originally due to the intellectual fervour of the movement for women's higher education, and that in the pursuit of high thinking plain living was allowed to become bad living. Here has been a great opportunity for medical women, and I believe that enlightened action from your professional side has still immense potency for helping the nation by improving the food and the health of the very girls and women upon whom our best hopes for the national future depends.

The Factor of Marriage.

May I finally touch upon one consideration which must be borne in mind in all discussions of divergence between the medical courses of men and women? The high function of marriage rarely takes a man out of the profession; it must, on the other hand, in most or many instances remove a woman from practice. This elementary difference is inevitably a large factor in decisions that have to be made when men and women students stand together in competition for educational facilities within hospitals or elsewhere. Time and money spent upon, say, ten men will go to make nearly ten future doctors. The same effort spent upon ten women must give a far smaller future effective output. I hold myself that few, if any, schemes of education are better than a sound medical education as a preparation and equipment for marriage. It should guide and strengthen a woman to perform "justly and skilfully and magnanimously" all the high and all the lowly tasks of married life. I think a wise student will see to it that in the absence of special reasons she will try to emphasize in her professional training and work those parts of the subject not only best fitted for a woman if she remains in professional practice, but most likely to be serviceable if and when marriage comes to her afterwards.

I know well that I have touched upon several points still the subject of high controversy. Yet it is those who are most in earnest about the future of women in medicine who will be the most desirous that these problems should be raised fearlessly, and that they should find their discussion and their right solution at a place like this, so rich already in the highest traditions of work and service.

THE MEDICAL PROFESSION AND THE PUBLIC.

ADDRESS BY DR. GRAHAM LITTLE AT ST. GEORGE'S HOSPITAL.

After distributing the prizes at St. George's Hospital Medical School on October 1st, Dr. E. Graham Little, M.P., gave some reminiscences of the institution which he left thirty years ago, and in particular of Howship Dickinson, whose clerk he was. One of the useful lessons taught him by Dickinson was that redundancy did not mean emphasis. If he wrote that the extremities were cyanosed and blue, Dickinson insisted on the deletion of one or other of the adjectives.

For the main theme of his address Dr. Graham Little took as his text some comments on medical education and ethics which appeared in a letter addressed to the *Times* in October last by Mr. Bernard Shaw. Mr. Shaw was

Co-ordination of the Student's Training.

Each stage in the education of a medical student (Professor Yeates went on) should interlock or dovetail with the previous and succeeding stages. Knowledge should be based on great general principles, and students should learn to reason from principles to the special study in hand. A student should not make the mistake of reasoning from the special to the general. He should refrain from depending on his memory. The medical man was a thinking animal, and the practice of medicine depended upon the application of great general principles, based upon observation, experience, and research. The sooner a student was set free from his teachers so as to allow experience to be his sole teacher the better for the growth of his real knowledge. Unfortunately, for evident reasons, it was extremely difficult, or almost impossible, to let a student have a direct experience in the treatment of diseases previous to qualification. It was evident, therefore, that study and work were essential after medical birth, and this should continue throughout life. A medical man ceasing to gain experience from his work should consider whether the community would not be better served by his giving up practice. Lack of co-ordination in the various stages of the student's training was in part due to the fact that the subjects were taught by men who had little experience of the work of later years. That referred to every stage of the student's career, not excepting the final year, for how many clinical teachers in hospitals had any experience of general practice? How many of them were acquainted with the early phenomena of disease by first-hand experience? Were the clinicians not training men to perform duties as general practitioners, duties of which many were more or less ignorant? Would it be too much to demand that every teacher in a medical school should start life as a general practitioner? Should a general practitioner, an ordinary doctor, not be a member of the staff of every teaching hospital? Should ordinary catarrhal conditions in children be passed by as of little account, whilst rare and incurable diseases, such as acromegaly, were carefully and minutely studied? Was it not better for the future of national health that a student should be thoroughly taught how to recognize and treat a suppurating finger or a common cold, or should a prospective medical man have no knowledge of those mild ailments? Should much of his time be taken up watching, from a distance, obscure and difficult operations which would only be undertaken by highly trained specialists? The medical student should, as an undergraduate, work to get a sound knowledge of the very earliest signs of disease, in addition to studying the pronounced cases which were so common in all hospitals. No attempt should be made at specialism until after graduation. To become a specialist appeared to be easy, but gaining the experience and knowledge necessary to be a great doctor was only possible to a few men. Students might believe that on becoming qualified all their troubles would cease, but work was now even more important, for, being freed from the influence of the medical school and the financial assistance of his home, he found life hard and difficult. Patients wisely avoided him; they did not want to be experimented on. He had thus little chance of studying disease in private. He had his chance now, if he would only take it. Let him become a keen student of disease. He should practically live in the hospitals. He could not afford to wait for cases at home. A stray case might call on him—a non-paying patient of a colleague—let him study that case with great care, for there was very little chance of his seeing it a second time!

A young practitioner should look forward to a hard life, with little remuneration. The practical doctor had greater opportunities to carry on investigations bearing directly on the treatment of disease than the laboratory worker. Large unexplored fields were open to all workers, and if the harvest was to be gathered there must be no strikers, no idlers, no dole-receivers in the profession. An eight-hour day was an absurdity.

The Work of the Teacher.

Time would not permit (said Professor Yeates in conclusion) the consideration of the work of the teacher, but what had already been stated about the student's work applied equally to that of his teacher. Any observer, no matter how casual or careless his observations, could group teachers into two classes. The first type of teacher was the man who professed to be a teacher until he was appointed to be one. On appointment he treated his students like the Duke of Plaza Torro—"He leads his regiment from behind—he finds it less exciting." He now looked down on teaching as a profession, and retired to the privacy of his room to carry out his life-work—a work, no doubt, of the greatest importance to the welfare of the world. The second type of teacher was the one who attempted to teach, and, as a consequence, was forced to make a continual series of original investigations. It was that type of man that was needed to perform the work of a medical school. If *ex nihilo nihil fit* was true, work was the best and only means of acquiring the knowledge necessary to gain the mastery over disease, and the hope was expressed that, as a direct result of that knowledge, there would be a spread of health, industry, and contentment among the peoples and nations of the world.

The DEAN (Mr. Eric Pearce Gould) presented the report for the past year, and in the course of doing so said that the extension of medical knowledge was, and must remain, dependent upon the labours of duly qualified workers with a zest for research; but the supply of such men would fail, and their zeal be quenched, unless funds were available for their training and support, and for the equipment and upkeep of laboratories. Gifts like those mentioned in the report encouraged the belief that that statement was to-day almost a platitude. To parody the well known slogan, "You provide the money and they (the men of science) will do the rest."

The prizes were presented by the ARCHBISHOP OF CANTERBURY, who, after the presentation, said that as he listened to the Dean's report there arose before him visions of those who had passed away. Three of those mentioned in the report were personal friends of his: the late Sir Richard Douglas Powell, whose grace and courtesy were an asset of enormous value to all his friends; Sir Henry Morris, whose vigorous personality was infectious, and who made one feel keen to do the things he was keen about himself; and Mr. Stephen Paget, whose wisdom and wit were such as to endear him, not only to medical men, but to people outside the medical profession. He wished success and God-speed to the splendid effort which was being made on behalf of the Middlesex Hospital to overcome difficulties which to most people would seem insurmountable, but which were being steadily overcome.

ST. BARTHOLOMEW'S HOSPITAL.

OLD STUDENTS' DINNER.

IN accordance with long-standing custom, the new winter session at St. Bartholomew's Hospital began without formal ceremony, other than the annual old students' dinner, which was held on the evening of October 1st in the Great Hall of the hospital. The chairman, Mr. W. T. Holmes Spicer, F.R.C.S., consulting ophthalmic surgeon, was supported by Lord Stanmore, treasurer of the hospital, Sir Anthony Bowlby, Sir Archibald Garrod, Sir William Beveridge, Vice-Chancellor of the University of London, Sir Holburt Waring, Dr. H. Morley Fletcher, and Sir Matthew Fell, Director-General, A.M.S.; the City of London was represented by Sir Charles Wakefield, formerly Lord Mayor, and Sir Wilfrid Atlay, formerly chairman of the Stock Exchange Committee.

The chairman, in proposing prosperity to St. Bartholomew's Hospital and Medical College, touched upon some of the outstanding events of the past year. One of the most important of these was the completion of the Queen Mary block of buildings for the housing of the nursing staff. Another was the decision to provide an operating theatre block in connexion with the new surgical block, which would enable in-patients to be taken straight to bed after operations without passing through the open Square. A third matter of great importance which

The British Medical Association was a private body, with as much right to make rules for its members as the committee of a club, and those who did not like to obey had the opportunity of resigning from its membership.

Scientific medicine had advanced *pari passu* with the setting up of the General Medical Council, and as for the disciplinary functions of the Council, the profession and not the public was the best judge as to what degree of control medical men would and should accept. In the matter of advertisement the Stock Exchange exacted a self-denying ordinance against its members advertising—an ordinance which was clearly of public utility—and medical men should surely enjoy the same privilege of ordering their affairs in this respect. Open advertisement would probably be resented as much by the public as it would be disliked by the reputable medical man. In dealing with covert advertisement it was more difficult to differentiate what was legitimate from what was undesirable, but no doubt a *via media* could be found. The activities of the Council in restraining the association of registered practitioners with unqualified persons were also misunderstood. It should be emphasized that the offence known as "covering" might be actually dangerous to the public, and it was from this standpoint that the Council had made its ruling. The unfortunate phrase foisted upon the Council by the wording of an Act of Parliament, "infamous conduct in a professional respect," often created an unmerited sympathy with a person removed from the *Medical Register*, for his conduct might not appear at all infamous to the public. But if it were kept in mind that his removal meant little more than the omission of his name from a list of practitioners who preferred to be bound by the rule which he had preferred to break, the sympathy would not be so readily forthcoming.

In conclusion, Dr. Little spoke of the hostility to the medical profession in the House of Commons. The same hostility was not shown to the practitioners of law, perhaps because there were two hundred of them in the House, while there were only fourteen medical men. It was difficult to see why doctors should be so poorly represented, and he pleaded for a more general co-operation on the part of the profession in political problems. The students to whom he was speaking should from the first address themselves to questions of citizenship, especially as these affected, and were affected by, medicine, as well as to the practice of their profession.

THE WORK OF THE MEDICAL STUDENT.

ADDRESS BY PROFESSOR YEATES AT THE MIDDLESEX HOSPITAL.

The opening of the ninety-second winter session took place on October 1st at Queen's Hall, Mr. S. G. Asher (chairman of the council of the Medical School) presiding, in the absence of H.R.H. Prince Arthur of Connaught, who was unable to be present owing to a prior engagement.

The introductory address was given by Dr. Thomas Yeates (Courtauld professor of anatomy), whose subject was "Ex nihilo nihil fit." A large number of people, he said, were work-shy, and they constituted the great class of men workers or idlers. They found their way into the medical schools. But, fortunately, there was another class of men—the workers—who carried on the work of the world, a much smaller class. Just as in a colony of bees one found workers and drones, so in a medical school there were the industrious and the lazy, the active and the passive, the useful and the useless. Work and its results in a medical school he considered under several headings. Work—the overcoming of resistance—appeared to be a universal and natural law. The medical student could not escape; he must earn his bread by the sweat of his brow. Likewise the medical teacher and research worker must work, no matter how intense the longing to avoid it. Happiness and contentment were rewards of work, and success—attainment of the goal aimed at—was a direct result. The idle student or teacher also got his deserts—he was miserable.

"Stuffing" the Student.

If work was essential for the successful study of medicine and for its research, the logical conclusion was that to serve up knowledge to a student in a pre-digested state must paralyse effort on the part of the student; mental dyspepsia resulted. Teaching (or rather cramming) in which the facts of the subject were presented to the student without any explanation how the knowledge had been gained, only attracted students devoid of ambition and whose only desire was to qualify and make a living. The process of stuffing the student was fatal to the evolution of his intellectual faculties, and teachers guilty of it were sinning against posterity. A medical man with inefficient training (in other words an incapable medical man) was a great danger to the community, and the hope was that the teacher producing such would sooner or later come under the care of one! The individual being taught must be an active and willing agent. To put this into practice: all medical study should be active, not passive. A student should attend regularly the courses prescribed, and try to gain a clear knowledge of the subject in hand. He should not simply aim at passing an examination on the minimum of knowledge. He came to a medical school to become an efficiently trained medical man, not to pass examinations. That work was essential, that it should be active not passive, that the struggle necessary to gain knowledge should be retained, and that the narrow road to knowledge must be trudged by all who wished to become educated—must be admitted by all. Hard, strenuous work on the part of the teacher and student was the method. The sooner those concerned admitted those contentions the better for the future of medicine, and the health, mental and physical, of the nations of the world. Work must be purposive and regular if definite results were to be gained. A definite object must be aimed at by the worker. In the laboratories of a school might be seen a group of youths looking quite exhausted. They were discussing a league football match, the winner of the Derby, or some entertainment to take place. They formed a large percentage of the community. They were workers that did not work—idlers, and of little interest. Then there were pale, pasty, anaemic, astigmatic, unshorn youths, worn out and exhausted by foolishly trying to memorize a book by heart, so that when an examiner—a greater fool than the student—touched the button, the record would be produced with painful accuracy. Such a student had surrendered his freedom and had become a slave to the word knowledge.

The Art of Observation.

Then there was the keen, earnest, determined-looking youth, carefully modelling, freehand, the parts of a dissection; building up the parts to form a concrete solid model. Now he attempted to draw the original from nature, and, after an hour's work, deliberately destroyed his model and put the original away, and again attempted to model in freehand the specimen. He was aiming at establishing an image of the object—an accurate presentation—in his brain. A few days later he tried to model the same part without the original in front of him. He was slowly developing a solid, concrete, stereoscopic, *x*-ray image of the human body. In time that would become permanent, and, like his shadow, accompany him everywhere. In the wards, and, later, in his consulting room, it would be beside him, at once becoming visible at his command. He needed no text-book of the healthy man, as the image was ready to appear when he wished. The clinician trained him to gain a concrete stereoscopic picture of the structure of his patient so that the keen student could have, at his wish, transparent images of a healthy man, on the one hand, and beside that a transparent image of his patient on the other for contrast. Diagnosis became a simple matter; the thoroughness of work led to the result aimed at—a full appreciation of the structure and working of healthy and diseased bodies. To see the organs, muscles, and so forth in their right relative positions to each other; to watch them working and undergoing chemical and physical changes—in fact, to observe life—was the aim of the student of medicine.

the younger generation. Coming down to what he might call the ordinary day's work of a member of the medical profession, he would suggest to the students that, although good technical skill and good theoretical knowledge were essential preliminaries to success, they were not of themselves sufficient. They needed to be reinforced by qualifications of more or less the same kind as were common to other professions and in business. The medical man must train himself to come to decisions and act promptly and not be afraid to take a certain amount of risk. It was necessary for him to have a good sound knowledge of human nature and to possess a high standard of character. Science had gone far, and with its progress there had been a great spreading of education among the public in general. The patient to-day was quite a different person from the patient of, say, fifty years ago. He was not to be fobbed off by a mysterious shake of the head or by some high-sounding medical phrase. There was a tendency at the present time to call in the specialist in substitution for the general practitioner. In some cases the services of the specialist were necessary; but it was not infrequently stated that nowadays the supplementing of the general practitioner by the specialist was being carried to limits which could not always be justified. If that was so, the more closely the training of the medical student could be brought into line with the requirements of the general practitioner the better it would be.

Union of South Africa.

[From our Correspondent in Johannesburg.]

The South African Institute for Medical Research.

Following the announcement of the resignation owing to ill health of Dr. Wilfred Watkins-Pitchford from the Directorship of the South African Institute for Medical Research, Johannesburg, comes the announcement of the appointment of Sir Spencer Lister to that post. Both men have rendered signal service to South Africa by assisting the development of medical research. In 1911 the Witwatersrand Native Labour Association launched the scheme for establishing an institution to be devoted to the purposes of medical research, and a joint committee, representing the Government and the association, was formed to carry out the project. This committee invited Sir Almroth Wright to visit Johannesburg and investigate the problem of lobar pneumonia, which was then a formidable scourge to the natives in the mines. Wright introduced the method of protecting against pneumonia by means of inoculation with a pneumococcus vaccine. This method was later considerably elaborated by Spencer Lister after he had joined the staff of the institute. His researches led to the devising of the immunizing vaccine with which the mine natives have been inoculated as a routine procedure during the last ten years. In 1912, on the recommendation of Sir Almroth Wright and General Smuts, Dr. Watkins-Pitchford was appointed first director of the institute. Since that date the work undertaken there has increased to such an extent that in 1923 it was found necessary to enlarge the building very considerably. The growth in the routine work has been very great: in 1919 the number of specimens examined was 17,000, but in 1925 the total had increased to 52,800. In addition to this diagnostic service the institute has for several years past issued considerably more than one million doses of various vaccines and serums annually. The work of the research division, which was inaugurated by Sir Almroth Wright, has expanded with the increasing accommodation and funds, and has earned for the institute a wide reputation. Besides lobar pneumonia the subjects which have been fruitfully investigated include miner's phthisis, schistosomiasis, helminthiasis, dysentery, scurvy, and cerebro-spinal meningitis. It is a striking fact that the annual death rate from disease among the 200,000 natives employed on the Rand mines has fallen from 28.3 per 1,000 in 1911 to 9.3 in 1925.

Farewell Lunch to Dr. Watkins-Pitchford.

The many farewell functions accorded to Dr. Watkins-Pitchford included a luncheon by the Mayor of Johannesburg. In replying to the toast of his health, he thanked the mayor for the opportunity of bidding farewell to some of the leading citizens of the town, and said it was a grave crisis in the life of a worker when he was called upon to relinquish his labour and to put away his tools finally. The most noxious disease with which an intelligent man could be afflicted was chronic unemployment. In their vigorous and restless community, containing numerous representatives of all the principal races and creeds of the world, there were but few ideals common to all, perhaps only one—the welfare of humanity. The South African Institute for Medical Research had been established by the gold mining industry of the Transvaal as an expression of this common ideal of the people. The work of this institution was not performed for the monetary gain of any individuals, nor for the advantage of any section of society, but was carried on against the common enemies of mankind—disease and death. This had been symbolically expressed in the bronze finial which surmounts the dome of the building. Dr. Watkins-Pitchford believed the time was not far distant when the maintenance of medical research in our midst would be raised above the chances and changes of party politics and the fluctuations of local industry. When the conscience of the people had been fully awakened the future of the work would be secured.

Sir Spencer Lister.

Sir Frederick Spencer Lister, who has been appointed Director of the South African Institute for Medical Research, received his medical education at St. Bartholomew's Hospital. After coming to South Africa he was for some years assistant medical officer at the Premier Diamond Mine near Pretoria. From 1912 until 1917 he was medical officer of the Durban-Roodepoort Deep and Bantjes Mines on the West Rand. At first temporarily attached to the South African Institute for Medical Research, his services having been lent by the mines, he joined the institute permanently in 1917, and was appointed research bacteriologist. Sir Spencer is best known in the scientific world in connexion with his researches on pneumonia prevention amongst the mine native employees on the Rand by means of prophylactic inoculation. This work extended over many years, but the main portion of it was finished in 1918. Since them he has tackled several bacteriological problems, more especially those of influenza and the filterable viruses. He has been chairman of the Witwatersrand Branch of the British Medical Association, and also of the Associated Scientific and Technical Societies of South Africa. In 1921 he received the South African medal and grant of the Association for the Advancement of Science. He recently returned to South Africa after a six months' tour of research institutions in Europe and America.

University of the Witwatersrand.

Sir Spencer Lister has been appointed honorary professor of pathology in succession to Dr. W. Watkins-Pitchford. The following candidates have been successful in Part I of the examination for the diploma in public health: J. M. B. de Wet, G. D. Laing, D. Ordman, F. H. Welsh. Part II of the examination will be held in March, 1927. Regulations are being drafted for two new diplomas in the Faculty of Medicine: D.P.M. and D.T.M. The course for the diploma in psychological medicine will commence next year. It will extend over twelve months, six of which are to be spent in an appointment as resident medical officer in a mental hospital approved by the university. The examination will be divided into two parts: Part I to include psychology and the anatomy and physiology of the nervous system; Part II pathology, neurology, and psychiatry. The need for a post-graduate course in tropical medicine in this country has long been felt, but there have been many practical difficulties in the past. It now appears that the proposed diploma course will be made available in the reasonably near future. The Otto Beit Chair of Physiology has become vacant owing to the resignation of Professor E. H. Cluver, who leaves the university to take up the appointment of assistant health officer for the Union.

concerned the welfare of the whole community was the decision to provide a block for paying patients. Mr. Holmes Spicer believed that in the future all operations and a large part of the medical treatment of non-charitable patients would be carried out in the paying departments of the great hospitals, because no one, even the most wealthy, would be able to command the best treatment elsewhere. In any scheme of hospital reconstruction the needs of paying patients must be regarded. Turning to the work of the medical college, he said that the staff were to be congratulated on a very successful year's work; 120 students had obtained their qualifications to practise, and new students to about the same number had joined during the year. In its endeavour to keep the school in the front rank in all matters concerning education and research, a whole-time resident physician-accoucheur, Dr. Wilfred Shaw, had been appointed, and a laboratory in memory of the late Dr. Herbert Williamson had been attached to this department. A new and far-reaching scheme for the transfer of all the college buildings to the other side of Giltspur Street was already in the air, but a very large sum of money, perhaps £140,000, would be needed to bring this about. Such a school with the finest equipment in the country would attract more and more of the best students; for unless it gave the best, and something better than the best, something that anticipated the needs of future generations, Bart's would not keep its great place in the world.

Lord Stanmore, in responding to the toast, added to what the chairman had said about the completion of the second wing of the nurses' home; the getting out of plans for new surgical and operation blocks, with accommodation for 250 patients, and a paying block; and the unveiling of the war memorial on July 8th last by the Prince of Wales, President of the Hospital. In regard to finance, the hospital had been fortunate in securing a number of legacies during the past few years, thus enabling it to pay its way and to put by something substantial for emergencies. He recognized that one of the real needs of the future was a residential college for students.

The health of the guests was proposed by Sir Percival Horton-Smith Hartley, who welcomed these distinguished pilgrims to St. Bartholomew's, and not least old friends like Sir Archibald Garrod and Sir Matthew Fell, whose distinctions elsewhere reflected honour on their school. Sir William Beveridge, in replying, had to confess himself a Vice-Chancellor of London University but not a medical man—a thing that scarcely ever happened, even though some of the Senators ate an apple a day! London, he said, although its schools were known far and wide, scarcely knew its own university. The problem was whether besides its constituent colleges there should be anything in the nature of a real central university for the metropolis. This question, whether London University should have an independent life as a whole, arose on many issues.

The chairman's health was proposed with warmth and wit by his old friend and fellow student Dr. Owen Lankester, whose praises of "Tom Spicer" were received with cheers. A most successful dinner ended with congratulations to the organizers, Sir Charles Gordon-Watson and Mr. Reginald Vick, who each, like the chairman, made very brief acknowledgement.

ST. MARY'S HOSPITAL.

ANNUAL DINNER.

The annual dinner of St. Mary's Hospital Medical School took place at the Connaught Rooms on Monday, October 4th, when Dr. G. W. H. French was in the chair. There was a large attendance.

The customary loyal toasts having been honoured the chairman proposed the toast of prosperity to St. Mary's Hospital and Medical School. He said that the outstanding event of the year was the appeal for the proposed scheme of new buildings, which would provide two modern operating theatres, many more beds, and increased accommodation for the nursing staff. The existing theatres were not up to date, and there was also a great need for additional beds, many of which it was proposed to use for casualty cases in view of the alarming increase in the number of street accidents. When the hospital got its new theatres and additional beds there need be no fear about the future; the hospital and school were bound to increase their present high reputation in the world. In referring to the deaths among members of the staff of the hospital during the past year, the chairman mentioned in particular the names of Mr. Herbert Page, Mr. Clayton-Greene, and Dr. R. H. Cole. In looking through the annual report of the school he was struck with the extraordinarily high percentage of passes of men who had worked at St. Mary's Hospital for the Primary Fellowship examination of the Royal College of Surgeons in December last; it was no less than 55 per cent.

In responding to the toast, Mr. A. R. Prideaux, chairman of the hospital board, said that the King Edward's Hospital Fund for London thoroughly approved the proposed additions to the hospital and offered a contribution of £4,000 on condition that the work was commenced before December 31st, and providing that the sum of £20,000 was raised before that date towards the expense of the scheme. He was glad to say that this sum was raised within five weeks of the opening of the appeal which was carried out by the administrative staff of the hospital, and the extra cost entailed did not exceed £150. Negotiations had been opened for obtaining additional land adjoining the hospital, and he hoped they would be successful. Dr. C. M. Wilson, dean of the medical school, also replied and gave interesting figures with regard to the growth of the school. The toast of the chairman, proposed by Sir William Willcox, K.C.I.E., was received with musical honours, and was duly acknowledged by Dr. French.

WESTMINSTER HOSPITAL.

The opening ceremony of the new session at the Westminster Hospital Medical School took place on October 1st in the Board Room, under the chairmanship of Mr. Austin Taylor. Sir Archibald Garrod's introductory address on the science of clinical medicine is published in full in this issue (p. 621). The Dean of the Medical School, Dr. A. S. Woodwark, in reporting on the work of the past session, said that the number in attendance had surpassed that of any year since 1900, and that the standard of work attained and the successes won were most satisfactory.

The annual old students' dinner was held on the same evening at the Royal Adelaide Gallery, under the chairmanship of Mr. William Turner, senior surgeon to the hospital. There was a large attendance, and, as usual, formality was replaced to a large extent by the spirit of a happy family gathering. The speeches were short and to the point. The toast of "The School" was proposed by the chairman, and in reply Dr. Woodwark gave a brief account of the favourable prospects, including the increasing recognition accorded to the school by the War Office for the post-graduate training of medical officers. The toast of the "Past and Present Students" was also proposed by the chairman, and, in reply, Dr. H. R. Coombes, in reminiscent vein, referred discreetly to adventures of the past, and Mr. R. Greene expressed the aspirations of the present students. The toast of "The Chairman" was proposed by Dr. G. Brittan Gill in an appreciative speech. A good musical programme added to the enjoyment of the evening.

CHARING CROSS HOSPITAL.

Field-Marshal Sir William Robertson, after presenting, on October 6th, the medals, prizes, and certificates at the Charing Cross Hospital Medical School, reminded the students that, though during the last half-century or so science had made great strides, there were many defects in the field of medicine and in the field of surgery which needed remedying. Some of them were sufficiently grave to leave ample scope for ambition. Exactly how they should be tackled scientifically it would be presumptuous for him to say, but they existed, and they would not be solved except by dint of much hard work and research. The responsibility for their solution rested mainly upon

to see their first anniversary. In this new hospital he felt sure that every endeavour would be made to reduce these distressing figures. He rejoiced to see that the Government and the General Medical Council had made arrangements for perfecting the medical curriculum and imposing upon every medical student a new and enlarged kind of training in obstetrics. Dame Mary Scharlieb touched on the history of the Liverpool institutions, of which the present new building was the result. She made an appeal to the citizens of Liverpool, which had been a pioneer in everything that was good and noble, to support and complete this beneficent undertaking. At present fifty-four patients can be accommodated. In the main section, in which are also the nurseries, there are four eight-bed wards and eight single beds. The extension contains two five-bed wards and two double-bed wards. When the hospital is completed 100 mothers will be provided for. There is a well equipped pre-natal out-patient department, and an infant clinic in which special attention is given to infant dietetics. The labour wards, operating theatres, and recovery rooms represent the latest improvements in obstetric science. There is a roof garden readily accessible by a bed lift.

New School Clinic at Birmingham.

A second school clinic in Birmingham was opened on September 30th to deal with a limited sphere of minor operations, including those in connexion with defects of the teeth, eyes, tonsils, adenoids, and ear discharges. The departments in the building are conveniently arranged and very well equipped. In addition to a central assembly room there is accommodation for a staff of two medical practitioners and three dentists, including consulting rooms and dental operating rooms. For the treatment of muscular defects and deformities a remedial exercises department has been established. The scabies block contains special baths and sterilizing plants for dealing with skin diseases. One room is provided for the treatment of minor ailments, and another for testing vision. Good accommodation is available for stores, heating appliances, and other administrative essentials. At the opening ceremony Sir Humphry Rolleston gave a comprehensive survey of the functions of a school clinic, with special reference to its preventive aspect. He commended the pioneer work of the Birmingham Education Committee in arranging for the treatment and supervision of rheumatic, cardiac, and choreic children, and emphasized the importance of preventive treatment in infancy and childhood. He mentioned that the total gross cost of the school medical services in 1923-24 was £1,220,268, or only about one-fiftieth of the total amount spent on public elementary education; this was a very small premium for rendering education a useful asset and for improving the physical and financial health of the nation.

Extensions at Stockton and Thornaby Hospital.

H.R.H. Princess Mary Viscountess Lascelles opened on September 23rd the new extensions of the Stockton and Thornaby Hospital, which serves the two Teesside boroughs of Stockton and Thornaby and the surrounding district. The original hospital was opened in 1862 with accommodation for six patients; fourteen years later it was transferred to its present site, and then provided for 31 in-patients. In 1890 a new wing was added, which practically doubled the accommodation, and seven years later, with the erection of another wing and the addition of a story to the central block, the total number of beds rose to 72. The demand for its services is illustrated by a waiting list of about 200, and it is hoped that the present extensions, which were begun two years ago, and increased the number of beds to 133, will substantially reduce the period of delay before admission. The new buildings include a nursing home, additional wards for children and adults, an out-patients' department and dispensary, an orthopaedic and electro-therapeutic department, including provision for heliotherapy, a skin clinic, improved operating facilities, an additional electric lift, new quarters for the resident medical officers, and an enlarged and remodelled kitchen. During the year which ended on June 30th, 1,535 in-patients were admitted and 1,083 operations performed. Sir Frank Brown, the president of the hospital, welcoming Her Royal Highness, described the success which had attended the efforts of the mayors of the two boroughs to raise the necessary funds for the extensions, as the result of which all the expenses had been met. It was stated also that for some years past the workmen of the two boroughs had contributed by their subscriptions no less than four-fifths of the cost of maintenance of the hospital, and that for the last forty-three years no financial year had closed with the hospital in debt.

Scotland.

The General Board of Control for Scotland.

The annual report by the Commissioners of the General Board of Control for Scotland includes a review of fifteen years' lunacy and mental deficiency statistics—from 1910 to 1924. The figures reveal an apparent decrease in lunacy, as the proportion of registered lunatics to each 100,000 of the population was 390 before the war, 374 during the war years, and 369 since the war. The total number of persons suffering from mental disorders is, however, really increasing, when the operations of the Mental Deficiency Act are considered over the same period of fifteen years. During the first period the operation of the Mental Deficiency and Lunacy (Scotland) Act of 1913 had not taken effect. In the second quinquennium—that is, the war period—the Mental Deficiency Act was in operation, and the number of mentally defective persons on the register steadily increased. This increase has gone on during the third quinquennium. From 1910 to 1914 the average annual number of mentally defective pupils in training at institutions was 546, while from 1915 to 1919 the average number of mentally defective persons certified under the Act was 1,236. By the end of 1924 the numbers had increased to 2,308. These statistical data of mental deficiency must be added to those of mental disorder to give a proper conception of the incidence of mental affections in the community. In the first five years under review many mental defectives who could not be certified under the Lunacy Acts were left uncared for and drifted into habits often tending to crime. The certification, under the Mental Deficiency Act, of mental defectives who had formerly been sent to asylums more than accounts for the diminished numbers of cases of lunacy now entering asylums.

Early Treatment of Mental Disorders.

The report deals with the early treatment of mental disorders, which has engaged the attention of the Board for many years. Voluntary admission is stated to be freely and increasingly resorted to by private patients entering royal and district asylums. The parish council of Glasgow inaugurated hospital wards for the treatment of incipient forms of mental disease in 1890, and the success of these special wards was so marked that two special wards, each containing twenty-five beds, were set aside as mental and observation wards in the new hospital opened in Duke Street. This example was followed by the parish councils of Govan, Paisley, and Dundee, and in 1924 observation wards accommodating eighty patients had been set aside for the treatment of cases of incipient, temporary, and unconfirmed mental disorders in the general hospital at Stobhill. The report states that in consequence of the institution of these observation wards the erection of a third asylum for the Glasgow district has been avoided, and that the advantages gained by hundreds of patients who, as the result of treatment in observation wards, have not required to enter asylums is immense. Into these observation wards, which have in all 160 beds, were admitted in the course of the year under review 1,176 patients, of whom 611 were discharged, while 383, or less than 33 per cent., required to be certified and sent to asylums.

Forms of Treatment.

Sanatoriums and reception houses for the treatment of tuberculous patients were erected in the Glasgow asylums over a quarter of a century ago. So much success has attended them that similar sanatoriums or spacious verandahs for open-air treatment have been erected in all the institutions under the Board. The necessity for these

The late Dr. James Erlank.

The sudden death of Dr. James Erlank, at the age of 38, has caused very deep regret amongst his colleagues in Johannesburg. One of the younger school of surgeons, he was recognized as a coming man in the profession on the Rand. He had for several years been treasurer to the Witwatersrand Branch of the British Medical Association, and last March was appointed secretary to the South African Committee, in which capacity he did a great deal of work in connexion with the recent visit to South Africa of Dr. Cox. Dr. Erlank graduated M.B., Ch.B.Edin. in 1910, and obtained the diplomas D.P.H.Lond. in 1914 and F.R.C.S.E. in 1919. He held the post of senior house-surgeon at the Cancer Hospital, Fulham, London. He went on active service with the British Red Cross in 1914, and was appointed an honorary captain in the R.A.M.C. He was attached to the Meerut Stationary Hospital, and subsequently was surgeon at the Duchess of Westminster's Hospital in France. He was mentioned in dispatches for meritorious war service. He was a member of the Rand Club and also of the Wanderers Club, and was held in high esteem for his surgical skill and his engaging personality.

England and Wales.

Small-pox in Willesden.

On September 29th Dr. G. F. Buchan, medical officer of health for Willesden, was called to see two cases (man and wife) by the medical practitioner in attendance. He found the man to be suffering from small-pox in a modified form and the woman from haemorrhagic small-pox. The cases were removed to the Willesden Small-pox Hospital the same day. The clinical features of these cases are described by Dr. Troup, the medical superintendent, as follows:

Husband, aged 43 years.—Vaccinated in infancy, revaccinated in or about 1900.

Condition on Admission to Hospital.—There were a few dry scabs on the hands, wrists, and feet, but the large majority of the lesions had completely healed, leaving no scar. It was not possible to differentiate accurately the site of all the pustules, but as far as could be ascertained these were as follows: Three on face, a few on scalp, three on shoulders and neck, three on abdomen, two on flanks, four on arms, four on hands, one on right thigh, two on feet (dorsal surface). The patient walked into the hospital, and had nothing to complain of. On October 2nd all scabs had completely disappeared, leaving a small scar in some instances.

Wife, aged 44 years.—Vaccinated in infancy.

Condition on Admission to Hospital.—Temperature 97° F., pulse 64. A haemorrhagic rash was present on the trunk, arms, fore-arms, thighs, and legs, being most marked in the axillae, groins, and wrists. The haemorrhages took the form of petechiae and ecchymoses, the latter form being chiefly present in the axillae and groins. A diffuse erythema was present on the trunk and extremities, most marked on the shoulders posteriorly. The face was slightly bloated, and there were no haemorrhages present in this region. The patient had a characteristic fetor, and was quite conscious. The conjunctivae were injected only. The tongue was thickly furred and the mouth dry. Metrorrhagia was present. There were excruciating pains in the back, and the patient was in great distress. There were no papules, vesicles, or pustules present. A hypodermic of morphine was given, and the patient remained quiet for about five hours. She was seen again at 11 p.m. The haemorrhages on the trunk and extremities had increased in size and number. The face and lips were a livid hue, and the former was more markedly bloated. The pulse could not be felt. The patient was very restless and in a semi-conscious condition; she died at 11.45 p.m.

Inquiries into the history showed that the patients had arrived in London from Paris on September 5th and had gone to a west central hotel, from which they moved to a West End hotel on September 7th. On September 8th the husband became ill with pains in the back, headache, severe prostration, and a temperature of 105° F. This was followed two days later by a rash which appeared first on the scalp and face and subsequently on the arms and legs as described above. On September 19th both patients were moved to a nursing home in Brondesbury, Kilburn. On September 24th the wife became ill with severe pains in the back, followed by headache, vomiting, extreme restlessness, and sleeplessness. On September 26th an erythematous rash appeared in the axillae and groins, subsequently becoming punctate, and on September 29th it was as above described.

Both patients were in Paris during the last fortnight in August, and apparently it was during the last week of that month that the husband was infected. It is reported that there is small-pox in Paris. The husband had been vaccinated and revaccinated and took the disease in a modified form. He apparently infected his wife, who developed small-pox of the virulent type; she had not been vaccinated since infancy.

The medical officers of health of surrounding districts in which the patients had resided or from which they had been visited were communicated with. Contacts were traced as far as possible and vaccination advised, and the necessary disinfection was carried out. At the West End hotel the medical officer of health of the metropolitan borough concerned, Dr. Charles Porter, ascertained that one of the staff had been ill for about thirty-six hours with suspicious symptoms, and that another of the staff was ill in Lambeth. Both of these cases have subsequently been notified as small-pox. The usual period of two days which elapses between the onset of the disease and the appearance of the rash gives an opportunity for preventive measures to be taken, as it enables the patients, who are not infectious during this period, to be isolated. All medical practitioners in Willesden have been notified of the circumstances of the occurrence of the disease and are actively co-operating with Dr. Buchan to prevent, as far as may be, any spread. Should no further cases arise Willesden will be free from danger of spread from the patients imported into the district probably about October 13th and certainly by October 20th.

It is reported in the press that a middle-aged woman has died in South Shields from small-pox. The medical officer states that four fresh cases occurred last week and that the disease is taking a virulent form.

Liverpool Royal Infirmary: New Maternity Department.

A new maternity department, the gift of Mr. Domingo de Larrinaga, a Liverpool shipowner, was formally opened by the Lady Mayoress, Mrs. E. W. Hope, on September 28th. Sir James Barr, president of the Royal Infirmary, said that such a department was an innovation so far as Liverpool was concerned, but it was long overdue, for there was a general impression throughout the country that midwifery was not as well cared for in the matter of medical education as was medicine and surgery. There was a great need for such training, not only for the future medical students, but also for obstetric nurses. In this country 3,000 women died every year in childbirth, and sepsis in some form or another claimed 1,000. Professor Blair Bell, in seconding a vote of thanks to the generous donor, said he had always felt that a gynaecological clinic was incomplete unless a properly equipped obstetric department was also instituted, for diseases of women and the accidents of childbirth were inseparably interwoven. From a teaching point of view he rejoiced that the medical students would now have the opportunity of acquiring a sound practical knowledge of obstetrics in a general hospital and gain clinical experience, under signal advantages, of the complications that might arise in childbirth. Further, the nurses trained at the Royal Infirmary would now be able to gain their obstetric experience necessary for the C.M.B. certificate. An extension of the x-ray department has been made for the express purpose of obstetric cases requiring such examination, and suitable delivery theatres have been added.

Liverpool Maternity Hospital.

The first section of the new building of the Liverpool Maternity Hospital was informally opened for the reception of patients on April 26th. The formal opening took place on September 29th, when Miss Hartley, ex-mayor of Southport and daughter of the late benefactor, who gave £50,000 to the building fund, unlocked the door. She expressed the fervent hope that the hospital would in turn open up a roadway for a healthier race, on whom depended the happiness and prosperity of the country. Sir George Newman gave an interesting address dealing with the importance of maternity and child welfare, which lay at the very root of national health. Incidentally he said that in the year between 25,000 and 30,000 children were stillborn, and that of those born alive 50,000 would not live

to the contention of the doctors, pay fees for the treatment they receive. The argument of the medical profession is that the admission of such patients to public hospitals deprives the doctors in charge, and also deprives private practitioners, of the chance of private practice. On the other hand, members of the Clare Board of Health hold that the doctors are paid salaries for the treatment of all patients admitted, and that they cannot augment those salaries by charging fees for treatment given in a public institution. There were two specific cases before the inspector. In one of these cases the father of the patient admitted that he was accepted as a surety for £350; that he had a farm of thirty-nine acres, and hired out a threshing machine. In the second case it was admitted the patient recently sold a farm for £860. Dr. T. E. O'Connor, medical officer of the Scariff hospital, denied that treatment had been refused in either case because of non-payment of his fees; the patients had left the hospital without consulting him. Mr. Gaffney (solicitor) said Dr. O'Connor had the support of the whole profession in the county in his stand. The doctors, he added, objected to people well able to pay entering hospital in the guise of poor people, and so exploiting the doctors. The inspector gave it as his personal opinion that a doctor could accept a fee from a patient liable for the repayment of full maintenance charges.

SCHOOL INSPECTION IN COUNTY DERRY.

Dr. Mary A. Long, medical officer in connexion with the County Derry Regional Education Committee's health and well-being scheme, has issued her report on the first year's work, in which she states that, notwithstanding the distrust with which this new service was regarded, many of the school managers, and most of the teachers, were most helpful and interested, and assisted in every way in winning the sympathy of the parents and children. Owing to the number of schools (223) and the large number of children present at the inspections the primary visit and routine inspection were almost all that could be accomplished. Dr. Long refers to the large number of parents who attended the inspection, and who, by verbal and written inquiries, showed how interested they were in the health of the children. One striking feature of the report is the high percentage of children found to be suffering from (1) throat and nose ailments, (2) defective teeth, (3) eye affections, (4) anaemia. Of 13,088 children medically examined, 51 per cent. were physically deficient. The condition of the children's teeth is stated to be appalling; the number who washed their teeth or have any attention paid to them is small. In one or two of the schools where the necessity of personal hygiene is taught the results are very creditable. Few children were found to be badly nurtured; many, however, were poorly nourished, and, although not suffering from any definite ailment, their power of resistance to disease was diminished. It was discovered that this was due not to want of food, but to improper feeding. Many of the families have tea four or five times a day, and in very few houses is porridge used. In such cases an amended dietary was recommended. In the Magherafelt area there were 151 verminous cases, 647 cases of defective teeth, 552 cases of tonsils or adenoids, 315 cases of eye disease, 287 cases of anaemia, 59 cases of skin disease, and 162 cases of ear trouble; other cases included tuberculosis, nervous diseases, deformity, heart disease, gastritis, nephritis, bronchitis, 4 mentally defectives, and 21 unclassified cases. In the Coleraine area there were 95 verminous cases, 468 of defective teeth, 360 cases of tonsils and adenoids, 142 of anaemia, 301 of eye trouble, 53 of skin disease, 72 of aural disease, 54 of bronchitis, and a number of other unclassified diseases. In the Derry-Limavady area there were 228 verminous cases, 752 cases of defective teeth, 620 cases of tonsils and adenoids, 240 cases of anaemia, 263 cases of eye trouble, 88 cases of skin disease, 91 cases of aural disease, 54 cases of bronchitis, 100 cases of phthisis, 49 cases of non-pulmonary tuberculosis, 2 mentally defective cases, and a number of other unclassified diseases. Attention is also drawn to defects of sanitation, of seating, of heating, and to overcrowding in many schools.

Correspondence.

THE PERIOD OF INFECTIVITY OF WHOOPING-COUGH.

SIR,—With reference to Dr. Devereux's inquiry (September 18th, p. 542) the following details may be of interest.

At the State Serum Institute in Copenhagen the examination for Bordet's bacillus has been made as a routine since 1916, and the method has been used regularly both by hospitals and by practitioners.

The cases of whooping-cough which during the years 1916-20 have been diagnosed either clinically or by the finding of Bordet's bacillus, and for which sufficient information has been available, behaved as follows as to the finding of Bordet's bacillus on a single examination:

	A.		B.
Catarrhal phase	134	.....	75 per cent.
Spasmodic phase, 1st week ...	277	.....	57 ,,
,, ,, 2nd ,, ...	201	.....	61 ,,
,, ,, 3rd ,, ...	121	.....	45 ,,
,, ,, 4th ,, ...	74	.....	41 ,,
,, ,, 5–6th ,, ...	107	.....	9 ,,

A=Number of samples from whooping-cough patients.
B=Percentage of positive findings

The frequency of positive findings thus diminishes considerably after the end of the fourth week of the spasmodic phase. The experience of the last six years has given similar results. Later than six weeks only a small number of examinations has been made. In very few cases Bordet's bacillus has been found seven to nine weeks after the beginning of the spasmodic phase.

In Denmark children are kept away from the school only until four weeks have passed since the beginning of the spasmodic phase, as there seems to be but little danger of contagion after that point of time.—I am, etc.,

MARTIN KIRSTENSEN,
Chief of Department at the State Serum Institute, Copenhagen.

September 25th.

SIR,—I am glad the question of the duration of infectivity of whooping-cough has met with a response (BRITISH MEDICAL JOURNAL, September 18th, p. 542, and October 2nd, p. 615). It is surely high time that the mere presence of a "whoop" should be eliminated as a factor in the question of duration of infectivity, since more cases than are usually acknowledged never whoop at all, while some may whoop for a very prolonged period for various reasons. I have a patient at present convalescent some months from whooping-cough who never whoops unless she is in a temper. Surely no one would suggest that on account of this the child should be excluded from school?

Several years ago Dr. Ritchie, the school medical officer in Manchester, in consultation with Dr. Niven, late medical officer of health, decided that children might be readmitted to school after four weeks' exclusion, even though the whoop had not disappeared. I think a regulation agreed upon by the two experts just mentioned could be taken as authoritative, especially since, when in close contact with the schools working under this regulation, no instance of ill effect was ever brought to my notice, in spite of the early antagonism of the teachers to the dreadful innovation, which antagonism soon disappeared.

It must not be considered that four weeks after the commencement of the whoop is the duration of infectivity of pertussis. It is probably much less. In many instances it does not extend beyond seven days from the commencement of the characteristic whoop, the main period of infectivity preceding this. Four weeks, whilst excessive as regards duration of infectivity, gave the child a satisfactory period of convalescence after what might have been a very debilitating illness.

To combat the lengthy duration of whooping which occurs in some cases, even when the original attack has been comparatively mild, we have commenced to use *x*-ray treatment. Dr. Bromley, the radiologist at the Booth Hall Infirmary, reports as follows:

"A dose equal to two Hampson units is given over the chest at intervals of a week for a fortnight or three weeks. The

sanatoriums is evident from the fact that tuberculous affections were found to be four times more prevalent among asylum patients than among patients in general hospitals. The extensive use of outdoor and sanatorium treatment for all classes of patients has brought the number of tuberculous cases down to the level obtaining in ordinary hospitals. Many other patients in frail physical health have been placed in these special buildings, and the treatment found beneficial in tuberculous affections has proved beneficial in other cases also. The advantages of occupational therapy are fully recognized by the Board. Farms are attached to twenty-two of the district asylums. The Board, in encouraging the acquisition of farm and garden ground for the therapeutic occupation of patients, has suggested that all institutions provided for mental affections should have a minimum of one acre of ground for each male patient. Many interests in farming and occupations in gardening can also be found for women. Other methods of occupational therapy have proved of benefit in the case of patients whose mental state is such that they cannot be employed on farm or garden work in a regular manner. The Board commends the appointment, in many institutions, of consulting dentists who have at their disposal adequately appointed dental rooms. The value of ultra-violet light treatment has been experienced in a number of institutions, and it is suggested that in the care of mental affections of a temporary and curable nature the treatment of nervous and mental affections by light, electrical means, and hydrotherapy might be carried out in dispensaries and clinics.

Encephalitis Lethargica.

In the Board's last report reference was made to the fact of lethargic encephalitis in producing mental affections, and it was suggested that it would be desirable to group such cases, if possible, in one institution. By an arrangement with the Board of Health, public authorities throughout Scotland have now been enabled to send cases of encephalitis lethargica to Stobhill General Hospital.

Lunacy Statistics.

On January 1st, 1926, there were in Scotland 18,537 insane persons, exclusive of those maintained at home by their natural guardians. The number at January 1st, 1925, was 18,398, so that an increase of 139 had taken place during the past year. The total number of patients admitted to establishments during 1925 under a sheriff's order was 3,180, or 52 less than in the previous year. Of these, 481 were private patients, or 44 less than in the previous year, while the number of pauper patients was 2,699, or 8 less than in the preceding year. Voluntary patients, it is pointed out, enter asylums voluntarily for treatment of mental disorder, with the sanction of the Board granted on a simple application by the patient. They cannot be detained for more than three days after giving notice of their intention or desire to leave, and they are not certified as insane nor registered as lunatics, although a record is made of their names and other particulars regarding them. The whole number of such persons admitted into asylums in 1925 was 482, and the number resident on January 1st, 1926, was 597. During 1925 the number of private patients discharged recovered was 201, while 951 pauper patients were discharged recovered. The number of private patients who died in establishments during 1925 was 243, while the number of pauper patients dying was 1,183. The death rate for patients in establishments was 8.6 per cent. of the average number resident for the year, as compared with 9.6 for the previous year. The whole number of escapes during 1925 was 144. Of these, 57 were brought back within twenty-four hours, 39 within a week, and 21 after a week. There were still 27 absent on the expiry of twenty-eight days from the date of escape. Of these, 2 were removed from the asylum registers as recovered, 15 as relieved, and 8 as not improved; 2 died.

Working of the Mental Deficiency Act.

Since the passing of the Mental Deficiency (Scotland) Act in 1913 the Board has made every effort to carry out its provisions, although difficulties, largely of an economic nature, have been encountered. The Treasury instructions of 1921 limit the numbers of defectives in institutions who would be entitled to participate in the imperial grant to 1,477. The privileges were, however, extended by a further sum of £5,000 towards the cost of providing for 200 additional mentally defective persons. During the coming year it is expected to utilize this for 100 beds in the institution at Birkwood (belonging to the Lanark District Board of Control), for 50 beds in the Broadfield institution (belonging to the Paisley District Board), and for 50 beds in the institution belonging to the Edinburgh District Board at Gogarburn. An application of the Edinburgh District Board of Control for authority to provide institutional accommodation for 500 defectives has received the sanction of the Treasury. Various other smaller institutions have also obtained Treasury grants. In addition to these, 1,009 rate-aided mentally defective persons are provided for in private dwellings, and there are fourteen institutions with accommodation for 1,790 certified defectives. The urgent needs for mental defectives are stated to be accommodation, educational facilities for the young, and extended means for the care and supervision of persons over 16 years of age. The returns show that there are 12,969 mental defectives throughout Scotland, of whom 1,709 are certified under the Lunacy Acts and placed in asylums. The total number returned by education authorities—who are responsible for defectives between the ages of 5 and 16—as capable of receiving education was 5,145. The number of mental defectives reported by parish councils to be incapable of education was 742. The parish council is the authority which deals with all mental defectives over 16 years of age, and the number of these returned by the parish councils was 3,384.

Aberdeen City Hospital Extension.

The public health committee of Aberdeen Town Council has approved a report proposing extensions and additions to the Aberdeen City Hospital. It makes provision for additions to the nurses' home at a cost of £27,000 for one sixty-bed ward and two forty-bed wards at a cost of £22,500, and for a venereal disease ward and centre at a cost of £11,000. The total cost of the scheme is estimated at £69,100, of which, deducting Government grants, £40,150 is to be borne by the town council.

Increased Insurance Benefits in Scotland.

The report presented to the annual meeting of the Scottish members of the National Amalgamated Approved Society, held in Edinburgh, when Mr. G. Tilley, F.F.I., was in the chair, showed that during the year 1925 the sum of £135,086 had been paid to Scottish members of the society in respect of sickness, disablement, and maternity benefit. This was an increase of £3,352 over that of the previous year. The surplus disclosed by the annual valuation would, as the chairman stated, enable the committee of management to announce an increase of benefits during the next five years. This would include additional treatment benefits—dental, optical, and convalescent home—and the provision of medical and surgical appliances, nursing, and contributions in respect of members receiving in-patient treatment at hospitals. During the year 1925 free legal assistance had been given by the society in cases of accident and industrial disease, and compensation had been secured for 29,157 members, involving various sums up to, in one case, £1,227. The total funds now invested on behalf of insurance members of the society amounted to £771,640.

Ireland.

Private Patients in County Clare Hospitals.

A controversy as to whether, and under what conditions, doctors in charge of public hospitals maintained out of the rates may charge fees to paying patients led to a sworn inquiry at Raheen (Scariff) District Hospital, held by Dr. A. D. Clinch, medical inspector of the Local Government Department. In Clare, patients admitted to such hospitals must pay for their maintenance if their valuation exceeds a certain figure. In addition, they must, according

last taking the place of white bread and margarine. This diet, or the addition, comes very near to a purely vegetarian one.—I am, etc.,

Fareham, Hants, Sept. 29th. ARTHUR E. DRUITT.

SIR,—In the letter on this subject which appeared in your issue of October 2nd (p. 616) it is stated that the Copts of Egypt are vegetarians. This is incorrect, on the testimony of Lane's *Modern Egyptians*, vol. ii, page 290, and according to the long experience in Egypt of the present writer.

I may add that there has been no surgeon-general with access to general health statistics in Egypt during the last twenty years, nor has any report on the incidence of non-contagious disease throughout the country been published by the Department of Public Health for many years.—I am, etc.,

London, W.1, Oct. 3rd. A. F. MACCALLAN.

CANCER MORTALITY AND AGE RATES.

SIR,—I am obliged to Dr. Davies and Dr. Brown for their replies to my letter published in the JOURNAL of September 25th (p. 579). I had already read Dr. Davies's article in *Public Health* on the comparison of cancer mortality in Hampstead and Shoreditch. A provisional analysis on similar lines between other residential and industrial districts does not result in the discrepancy he finds. I understand from Dr. Davies's article that he suggests further investigation before arriving at a definite conclusion. The authors of "An investigation into the statistics of cancer in different trades and professions" (Medical Research Council Special Report No. 99) find that their figures "give no support worth mentioning to the idea that better living predisposes to a higher cancer death rate." A recent report on "Cancer of the Breast" (Ministry of Health No. 32) concludes that social status as judged by occupation has no bearing on the incidence of cancer of the breast. But if, as Dr. Davies assumes, cancer becomes more prevalent amongst the well-to-do as age advances, it would rather suggest that the onset of the disease was delayed owing to the better feeding producing a greater resistance.

The great disadvantage in drawing conclusions as to the incidence of cancer according to social position, trade, occupation, etc., is the considerable error that must necessarily be associated with such a method. The duration of the factors terminating in cancer are unknown and may extend over a long period. Hence the need for an exceptionally comprehensive investigation into the pre-cancerous life.

In the Medical Research Council's report quoted above the figures were compiled from cards relating to male deaths from malignant disease which included the trade, etc., of the deceased. Presumably this referred to the trade at the time of death. Now many men have taken part in several trades during their lifetime, and even in the same trade the nature of the occupation may vary considerably. Again, the period during which a man is engaged in his trade is only a part of his total occupation, and factors connected with his pursuits and pastimes cannot be dissociated from his working occupation. Under the heading "Civil Service," for example, a clerk, although following a sedentary occupation, may lead a very active life outside his work, and his total activity may be cumulatively greater than a man in an active occupation, or vice versa. Many other errors may appear in such an investigation and can only be eliminated by dealing with a vast number of cases. The authors recognize this in their summary.

A similar analysis of districts differing in economic environment will show the same liability to error. A person who dies from cancer whilst living in a residential district and is presumed to be in a prosperous economic condition may have been living in very different circumstances for the greater part of his life. In such districts a further source of error is the fact that in districts associated with well-to-do residents there is a preponderance of persons in attendant services, such as domestic servants, chauffeurs, gardeners, etc., and it would be necessary to analyse each case and apportion it to the relative social status in order to ascertain the proportion actually occurring amongst the well-to-do. Furthermore, in order to confirm the view as to overfeeding as a causal factor in the disease, it would be necessary to ascertain if the increased incidence was in fact amongst those who were overfed. Many well-to-do people are very abstemious as regards diet. The etiology of cancer is still a very complex subject. Even the alleged increase is open to doubt. That more cancer is *seen* now is probably correct, but this is not synonymous with an *increase* of cancer.

Statistically the disease has shown an increase since the first report of the Registrar-General in 1838. The graph of cancer shows a steady decline from the present time to that date, and if it could be carried back, at the same rate, previous to 1838 it would reach the base line about the beginning of the nineteenth century. That is to say, the first case of cancer would have occurred in this country about 120 years ago. As a fact cancer was, I suppose, a familiar disease long before that period.

How much of the statistical increase is due to improved diagnosis and certification it is impossible to say. In this connexion, however, it is interesting to note that the deaths notified under senile decay have been falling for many years. Might not many of these have gone to swell the cancer statistics?—I am, etc.,

Streatham, S.W.16, Oct. 3rd. E. HUDSON.

SANATORIUM TREATMENT.

SIR,—A small correction is needed in reference to the letter of mine which you published in the BRITISH MEDICAL JOURNAL of September 25th.

After quoting from Dr. Stocks's and M. Noel Karn's "Memoir,"

"it was found impracticable to use the presence or absence of tubercle bacilli in the sputum as more than an adjuvant in diagnosis, *since the number of cases in which bacilli were sought for and found was relatively small*,"

I went on to say that the percentages were given as 19 for males and 11.9 for females.

I should have pointed out that these were the percentages for L3 cases only, in which the physical signs are most advanced. In L1 cases the percentages given are as low as 6.1 for males and 4.2 for females, as quoted in Dr. Gillespie's letter.—I am, etc.,

Cheshire, Sept. 30th. E. WEATHERHEAD.

MEDICAL PRIVILEGE IN THE COURTS.

SIR,—The following extract from the trial of the Duchess of Kingston, charged with bigamy, in 1766, records, I believe, the first instance in which medical privilege was pleaded in an English court of law. The attitude of the judge on this occasion is exactly the same as that adopted by the authorities at the present time—namely, to refuse to recognize any such thing as medical privilege in connexion with the giving of evidence. A full account of the proceedings will be found in Howell's *State Trials*.

Mr. Caesar Hawkins, a medical practitioner, was called as a witness in the case, and the following questions were asked him.

Q. Mr. Hawkins, are you acquainted with the prisoner at the bar, and how long have you been so?

A. A great many years, I believe about thirty.

Q. Are you acquainted with the present Lord Bristol, and how long have you been so?

A. I have had the honour of knowing the Earl of Bristol nearly as many.

Q. Do you know of any intercourse between my Lord Bristol and the lady at the bar?

A. Of an intercourse certainly: of an acquaintance undoubtedly.

Q. Do you know from the parties of any marriage between them?

A. I do not know how far anything that has come before me in a confidential trust in my profession should be disclosed consistent with my professional honour.

The question was repeated.

Counsel. I trust your lordships will see nothing in my question that can betray confidential trust or dishonour Mr. Hawkins in giving it. My question is simply whether Mr. Hawkins knows from the parties of any marriage between them?

Lord High Steward. The question that was asked by counsel at the bar is whether the witness knew from any information of either of the two parties, that they were married. The witness objects to it whether he is to answer any questions that are inconsistent with his professional honour. Your lordships are to

interval is then extended to a fortnight for two more treatments, or more. The distance is 9 inches, antikathode to skin, the filter two or sometimes three millimetres of aluminium, the current three to five milliamperes, and the hardness of the tube equals five inches equivalent air-gap. The advantages claimed for this splitting of the dose is that the time factor for each treatment is shortened, an important point with very young children, and the more *x*-ray treatment is actually given in the whole time."

The results of this treatment, though variable, have been decidedly satisfactory, inasmuch as the number of whoops and the duration of whooping have diminished.

This matter of duration of infectivity and period of exclusion from school would afford a very valuable discussion, which might be suggested to either the Public Health or to the Diseases of Children Sections of the Annual Meeting at Edinburgh next year.—I am, etc.,

Booth Hall Infirmary, Blackley, Manchester, Oct. 4th. JOHN D'EWART, Medical Superintendent.

MINER'S NYSTAGMUS.

SIR,—In the very interesting correspondence on miner's nystagmus which has been published in the JOURNAL I note that the influence of posture is not given the primary place it would appear to merit in a consideration of the pathogenesis of the condition.

The mechanism of the phenomenon of nystagmus was formerly believed to be oculomotor, due to the removal of a higher influence, such as the cerebellum, from the control of the oculomotor nuclei. We now know that the vestibular nucleus is connected to each and all of the oculomotor nuclei by fibres of the medial longitudinal fasciculus, and that nystagmus is produced by some interference in the integrity or sensitiveness of these structures.

When a miner works in a strained or unnatural position and has to look sideways at the point where he is hewing coal, an intermittent or prolonged strain is then thrown upon all of these nuclei, and sooner or later, as in intermittent or prolonged strain elsewhere, a functional disturbance is set up which yields to rest or change of occupation.

Having been engaged for some time in an investigation of vestibular function, especially in epidemic encephalitis, I feel that the importance of the vestibular control over eye movement is not sufficiently acknowledged. I should like to emphasize this by quoting a case seen through the kindness of Professor A. J. Hall of Sheffield. The patient had an external ophthalmoplegia following an attack of epidemic encephalitis, which I was able to relieve temporarily by the simple expedient of syringing the ears with cold water. Not only was the patient able to move his eyes in a limited degree in every direction, but the diplopia of which he complained disappeared. This one case is, I think, sufficient to show what is, after all, the basis of the Bárány tests—namely, that abnormal vestibular stimulation is transmitted to the oculomotor system and expressed in abnormal ocular movements.

It is not my wish to minimize the effect of poor light, etc., on the condition, but rather to suggest to investigators who see more of these cases than I do, that they might review the possibilities of the causes of miner's nystagmus being primarily postural. The letter of Dr. Ingram-Johnson published in the JOURNAL of October 2nd (p. 615) has stimulated me to take part in this correspondence and to support Mr. Snell's theory which he refers to.—I am, etc.,

Manchester, Oct. 2nd. RICHARD I. POSTON, M.D.

A WARM ENVIRONMENT FOR RHEUMATIC PATIENTS.

SIR,—The heavy incidence of many forms of rheumatic disease in cold and variable climates, and the relief of pain and stiffness obtained by heat, are generally acknowledged facts. But it is not, I think, sufficiently realized that persons unfavourably affected by cold can be, and ought to be, as much as possible protected against chill. If this is true in general, it is, I am persuaded, especially true of rheumatic patients during the period occupied by physical treatment at spas, hydrotherapeutic institutions, or clinics.

Many times have I had the unfortunate experience that thermal baths have failed of their effect in England, on account of exposure to cold during the course of treatment. A frail and elderly lady, recently referred by me to one of our mineral water hospitals, delighted in the thermal baths, after which every day she felt immediate relief of stiffness and pain, but in her weak and crippled state she was unable to bear the coldness of the dressing rooms, corridors, and wards, and the treatment had to be abandoned. People who have lost their resistance to cold cannot safely be exposed to changes of temperature after leaving a thermal bath, and hence the immemorial use of the hot blanket on stepping out of the water and of the rest in bed or on the couch of a warm dressing room. Similar precautions are peculiarly necessary in our climate. The plea for warmth derives additional force from the fact that thermal treatment is available all the year round in England, and that experience shows that it is often beneficial for rheumatic persons in the colder months of the year. I am inclined to think that many cases fail to obtain optimum results at our spas from lack of a warm environment under treatment, and that, on the other hand, the good results of institutional treatment, such as that obtained at the best "hydropathics," are due to the fact that not only the treatment department but the whole building is maintained at all seasons at a constant temperature. A visit to these places is like a visit to a warm country.

At a recent congress of hydrology in Czecho-Slovakia interesting details were given of thermal treatment for rheumatism at certain vapour and mud baths which have been frequented since Roman times. It is unnecessary to go to Italy for evidence of the value of heat. The Celtic baths and hermetically sealed huts of Britain and the hot baths and warm houses of the Roman occupation are equally good evidence. In the Italian spas special provision is now being made for the poorer classes and for industrial workers, but Dr. Astori of Abano[1] is careful to emphasize the lesson which I am sure we should do well to remember, that the avoidance of chill is in many cases the secret of success:

"It is of much importance in the colder months of the year that the bath buildings, salons, and sleeping accommodation of the patient should be maintained at a constant temperature."

—I am, etc.,

London, W.1, Sept. 27th. R. FORTESCUE FOX.

APPENDICITIS AND VEGETARIANISM.

SIR,—A letter under this heading appeared in your issue of September 18th (p. 545) mentioning a case of acute gangrenous appendicitis in a boy of 10, whose parents and himself were life-long vegetarians.

I think your correspondent might certainly take this case as an exception, remembering, however, that, as far as our knowledge goes, there is no cult or craft which would dare to preach immunity from appendicitis to those who follow their tenets. Any person surely, by indiscretion in diet, is liable to produce a typhlitis which may go on to appendicitis.

Since December, 1918, I have been a lacto-vegetarian—that is, I allow myself dairy produce while abstaining from all flesh food. I have been brought into touch with most of our British and many Continental vegetarians, but have not heard of a case of appendicitis amongst them—although I have been on the alert for such. One case of gangrenous appendicitis occurred in a vigorous young married man four years ago. He was intimately associated with vegetarians and was largely a vegetarian himself, but he commonly partook of moderate quantities of fish and butcher's meat.

I should like to conclude by calling attention to what was to me a highly interesting letter in the same number of the BRITISH MEDICAL JOURNAL (p. 542), where the writer referred to the work of the Medical Research Council on "Growth and diet for boys and girls of school age." He points out that although there were great results from the added milk to the dietary, those results were outstripped in the case of girls on a dietary to which wholemeal bread, "sun-maid" raisins, and butter were added, the first and

[1] *Archives of Medical Hydrology*, Anno. IV. No. 3, p. 182.

Up to the time of his election as surgeon to the infirmary it had been customary to send to larger centres many cases requiring special skill, and in particular those demanding experience of eye, throat, and ear work. Ewart recognized the magnificent opportunity afforded to a keen and able man by a county hospital of sixty beds, the large majority of which were at that time at the disposal of his partner and himself, and set to work steadily to make himself and the hospital competent to deal with all. After a special course of training he started departments for throat and ear and also for eye work, and undertook, with increasing success, major surgery of every kind, so that by 1913 the time was ripe for further developments. The death of King Edward, and the generosity of the late Mr. W. James, gave opening for a county subscription. A first-class operating theatre, new out-patient departments, and other improvements were constructed, and formally opened by the King, the name "Royal West Sussex Hospital" being given to the reconstructed institution. With ever-increasing private and consulting practice Ewart's skill and experience grew apace. The ear and throat department was handed over to a colleague, but for major surgery and for eye work Dr. Ewart easily took premier place, and his skill and experience were in frequent demand by his medical confreres in many parts of the district. This year being the centenary of the opening of the hospital, a special effort will be made to carry out further improvements. No one so suitable as Dr. Ewart could be found to guide the fortunes of the institution at this critical time, and he had been elected in April chairman of the board of management. Unhappily, the unwearied labours of twenty-seven years, and especially the extra strain during the war, when by conversion of the county mental asylum a military hospital of 1,100 beds, staffed partly by local practitioners, was in regular use, proved too much for a constitution never robust. Subject to headaches ever since he had typhoid fever in New Zealand, a lifelong martyr to dyspepsia, most seriously ill with gastric ulcer (for which operation was done in 1922), he had lately been making an heroic struggle to carry on, in spite of a return of his old symptoms in aggravated form. This time, alas! the trouble was beyond the aid of surgery, and he passed away on the festival of St. Michael and All Angels.

HOWELL DAVIES, M.R.C.S.Eng., L.R.C.P.Lond.,

Honorary Surgeon, Pretoria Hospital, Transvaal.

Very great regret was felt throughout the medical profession in South Africa at the announcement of the death, on September 2nd, of Dr. Howell Davies. He had contracted pneumonia a fortnight before, and was nursed at first in his own home in Arcadia, Pretoria, his colleagues in the town remaining with him by turn day and night. On September 1st removal to hospital became imperative, the condition having become complicated with septicaemia and meningitis.

Dr. Davies, who was 55 years of age, was born in Wales, and received his medical training at St. Bartholomew's Hospital. He went to South Africa during the Anglo-Boer war as a civil surgeon. In the latter part of that war he was in charge of the concentration camp at Irene, near Pretoria. At the conclusion of hostilities he returned to Wales, but after a few months at home he was back in the Transvaal, and commenced private practice in Pretoria. He married Miss Mabel Chatfield of Kimberley, and they had three sons and a daughter. Two of the sons are engaged in cotton-farming in the Northern Transvaal. Dr. Davies had been honorary surgeon to the Pretoria Hospital for the past eighteen years, and chairman of the House Committee for five years. He was on the board of the Leper Asylum, and at one time on the board of the Mental Hospital. He was a member also of the board of the Victoria Cottage Maternity Hospital. For many years he was district surgeon of Pretoria. Folk in the country round about greatly regretted the day when his private practice in Pretoria town became so heavy that he had to relinquish the district surgeoncy, and could no longer visit them on their outlying farms. He was president of the Pretoria Branch of the British Medical Association, and at the twentieth South African Medical Congress last year was elected president for the ensuing year, and was to have presided next month at the congress which is to be held at Pretoria. A hard and conscientious worker, kind-hearted and generous to a fault, his loss will be felt far outside the bounds of the medical profession.

P. J. S. NICOLL, M.D., C.M.,

Physician, Queen Mary's Hospital for the East End.

Dr. Patrick John Smith Nicoll, who was for thirty-four years a well known medical practitioner in Stratford, London, died suddenly at Braemar, Aberdeenshire, on September 25th. He graduated M.B., C.M. at the University of Aberdeen in 1887, and in 1891 proceeded to the degree of M.D. After acting as assistant in various practices he joined in partnership the late Dr. Arthur Drake at Stratford. He held the appointments of medical officer to the Post Office, local medical officer to the London County Council, and medical officer to the West Ham education committee, and was also a certifying medical officer under the Mental Deficiency Act. He took an active interest in the work of the British Medical Association and was secretary of the Stratford Division for fourteen years. He was a Justice of the Peace for West Ham, and was a keen Rotarian, being the first vice-president of the West Ham Rotary Club. His greatest interest in life, however, was undoubtedly his work in connexion with the development of Queen Mary's Hospital. About thirty years ago he was elected a medical officer to what was then the West Ham Hospital, succeeding Dr. Sanders, who retired on being elected full-time medical officer of health for West Ham. At this time the hospital had about sixty beds. Dr. Nicoll from the first gave special attention to the administration of the hospital, which he recognized was totally inadequate for the requirements of a great and growing population, and spared no pains to further its extension. It was largely through his influence that funds were obtained for the building of an additional block containing forty beds, an operating theatre and casualty department, and residential accommodation for medical officers and nurses. When this extension was opened the staff was reconstituted and Dr. Nicoll was appointed the first physician, and became chairman of the honorary medical staff, which posts he held till his death. He was a member of the committee of management from the time of his appointment and had been vice-chairman for the last ten years.

A colleague writes: Dr. Nicoll's capacity for influencing any with whom he came in contact was much above that of most men. His friendships once made were kept to the end. The local esteem in which he was held was shown by the very large congregation who attended the memorial service held at St. John's Church on September 29th. His loss will be much mourned by a large circle of friends and patients, by whom he was respected and beloved.

Dr. William Kerr Peden, who died suddenly while engaged in his professional work, was born at Galston sixty-eight years ago. He graduated M.B., C.M.Glas. with honours in 1879. After holding the posts of house-physician and house-surgeon to the Western Infirmary, Glasgow, he served for five years as surgeon to the Blantyre Mission in East Africa. On resigning his appointment to the Mission he spent some time in post-graduate medical study in Vienna. In 1886 he returned to Glasgow, and after a short period in partnership with the late Dr. James K. Kelly, he set up in practice on his own account. Dr. Peden, who was a member of the Glasgow Southern Division of the British Medical Association, is survived by a son and a daughter, the former being a member of the medical profession; his younger son was killed during the war.

Dr. Walter Richard Hugh Smith of Shrewsbury died on September 19th. He was educated at Dublin University, where he graduated M.B. in 1902, and obtained the L.M. at the Rotunda Hospital, Dublin. He proceeded M.D. in

determine whether the question put by counsel at the bar shall be asked.

Lord Mansfield. I suppose Mr. Hawkins means to demur to the question upon the ground that it comes to his knowledge some way from his being employed as a surgeon for one or both of the parties: and I take it for granted, if Mr. Hawkins understands that it is your lordship's opinion that he has no privilege on that account to excuse himself from giving the answer, that then under the authority of your lordship's judgement, he will submit to answer it; therefore to save your lordships the trouble of an adjournment, if no lord differs in opinion, but thinks that a surgeon has no privilege to avoid giving evidence in a court of justice but is bound by the law of the land to do it: (if any of your lordships thinks he has such a privilege, it will be a matter to be debated elsewhere but) if all your lordships acquiesce, Mr. Hawkins will understand that it is your judgement and opinion that a surgeon has no privilege, where it is a material question in a civil or criminal cause, to know whether parties were married or whether a child was born, to say that his introduction to the parties was in the course of his profession, and in that way he came to the knowledge of it. I take it for granted that if Mr. Hawkins understands that, it is a satisfaction to him and a clear justification to all the world. If a surgeon was voluntarily to reveal these secrets, to be sure he would be guilty of a breach of honour, and of great indiscretion: but, to give the information in a court of justice which by the law of the land he is bound to do, will never be imputed to him as any indiscretion whatever.

Mr. Hawkins then answered the question.

The ruling of Lord Mansfield was undoubtedly correct law, and is exactly the view held by the judges to-day. It is, in addition to being legal, sound common sense.—I am, etc.,

Hove, Sept. 23rd. L. A. Parry.

ANGINA PECTORIS.

Sir,—The question of the quantity of the "i" in angina was recently mooted in a correspondence in the British Medical Journal. Your first correspondent (June 12th, p. 1012) quoted a line—

"*Hāustum ān|gīnă tī|bī mīst|ūm sălĕ|pōscĭt ă|cētŭm.*"

in which the "i" was long. But he could not remember the author. It was pointed out that the author was Q. Serenus Sammonicus, who was writing *circa* A.D. 230, and that the line actually ran:

"*Ānginā|vĕrŏ sī|bī . . .*"

The quantity of the "i" here is short. In reading Sammonicus lately I found this version of the same line:

"*Ăngīn|ām vĕ|ro mīst|ūm sălĕ|pōscĭt ă|cētŭm.*"

Here the "i" is long, and is so in the three texts I have seen.

Are we to assume that the word had become vulgarised when Sammonicus wrote? For the quantity of the "i" is undoubtedly short in both Plautus and Lucilius. Or was my text corrupt? I seek enlightenment, and remain a devoted adherent to ānginā.—I am, etc.,

London, S.E.1, Sept. 20th. P. B. Wilkinson.

LATE RICKETS AND RENAL DWARFS.

Sir,—My attention has been called to the fact that in your review of the *Guy's Hospital Reports* in the British Medical Journal for October 2nd (p. 599) reference is made to a paper of mine on renal dwarfism. The reviewer says of my article: "after discussing the nature of so-called late rickets, concludes that most, if not all, of the cases so described have been renal dwarfs."

This is not quite the conclusion which I draw. I was discussing *post-mortem* findings and fatal cases, noting the fact that in some cases joints have been examined *post mortem* but no record of the cause of death has been given. I wrote: "I think many, if not most, *fatal* cases of late rickets have been renal dwarfs."

In studying the clinical picture of late rickets and adolescent knock-knee cases, my own experience has been that rather more than half have been renal in origin, and the renal cases die from uraemia; I have notes of eight *post-mortem* examinations. The cases of late rickets of different etiology have not died, and I have no *post-mortem* experience from which to draw conclusions.

In trespassing on your valuable space with this letter I realize that it may appear to call attention to something which may never have been noticed; but, on the other hand, as your reviewer's words stand it leaves me open to the charge of having lost my sense of proportion because I happen to have followed the life-history of a number of renal dwarfs.—I am, etc.,

Derby, Oct. 4th. Hugh Barber.

Obituary.

DAVID EWART, O.B.E., M.D., F.R.C.S.Ed.,

Honorary Surgeon and Ophthalmic Surgeon, Royal West Sussex Hospital.

We much regret to record the death of Dr. David Ewart of Chichester, in his 62nd year. He was born at Eccleſechan, Dumfriesshire, but owing to the ill health of his father moved, in 1880, to New Zealand. He only began his medical studies in 1893, completing one year at the Otago Medical School. He then returned to Scotland, and graduated with honours as Bachelor of Medicine and Surgery of Edinburgh University in 1899. In 1902 he became Fellow of the Royal College of Surgeons of Edinburgh, and took the degree of M.D.Ed. with honours in 1907. During his career at the University of Edinburgh he won the Grierson bursar scholarship in pathology and bacteriology, and was assistant demonstrator in anatomy, pathology, and physiology. After graduating, Dr. Ewart went to Chichester in 1899 as house-surgeon at the Royal West Sussex Hospital, then the Chichester General Infirmary. Two years later he joined the late Dr. Skaife in practice, and was shortly afterwards appointed honorary surgeon to the hospital. He was responsible for the formation of a department for diseases of the eye, ear, nose, and throat, became honorary ophthalmic surgeon, and continued to hold the two posts concurrently. He took a prominent part in the reconstruction work at the hospital in 1913, and recently was made chairman of the board of management of the hospital. Dr. Ewart also held appointments as honorary consulting surgeon to King Edward VII Sanatorium at Midhurst, to the Graylingwell Hospital, and to the Bognor War Memorial Hospital. He was an honorary life member of the St. John Ambulance Association, acting at one time as one of its honorary surgeons. For his services at the Graylingwell Hospital during the war he received the O.B.E. To members of the British Medical Association the refined, grey-haired figure of Dr. David Ewart was well known. From 1907 he was a member of the executive committee of the Chichester and Worthing Division. He became chairman of the Division in 1921. He was a member of the Sussex Branch Council from 1915 to 1920, and a vice-president of the Branch in 1915. Owing to his early connexion with New Zealand, he represented the New Zealand Branch on the Council from 1909 to 1916, and the New Zealand and Fiji Branches since 1919. He was a member of the Dominions Committee from 1909 to 1916, and from 1919 to this year, and at one time was chairman of the committee. In 1921-22 he was a member of the Finance Committee of the Association, and he served on the Colonial Medical Service Subcommittee 1920-21. Dr. Ewart was keenly interested in the work of the Association and loyal to its interests. His temperament being of the gentler type, he did not display the violence of the partisan. He was of greater value in a judicial capacity than as a leader of men, and this was recognized in the long service he gave to the committees on which he served. He was indeed a country surgeon of the best type; of charming manners, great ability, sound experience, and worthy of the wide respect in which he was held. He took little part in public life beyond his connexion with the Royal West Sussex Hospital and with the British Medical Association, but he was a member of the West Sussex Insurance Committee. He leaves a widow and six children. The funeral service, conducted by the Bishop of Lewes, was attended on behalf of the Council of the Association by Dr. Lockhart Stephens.

The following tribute is from the pen of a close friend and colleague:

On Saturday, October 2nd, the ancient city of Chichester wore an aspect of general mourning; the cathedral was packed, marvellous was the collection of lovely flowers, and from all parts of the district men and women, rich and poor, crowded in to pay their last tribute of respect and affection to one whose name had become a household word among them. After twenty-seven strenuous years of work Dr. Ewart was carried to his rest.

THE annual dinner of the Royal Society of Medicine has been fixed for Thursday, November 18th, at 8 p.m., at the Hotel Victoria, Northumberland Avenue. The Prime Minister has consented to be the society's guest of honour if his Governmental duties permit.

THE People's League of Health has arranged the following series of lectures to be delivered at the house of the Medical Society of London, 11, Chandos Street, Cavendish Square, at 6 p.m.: Eight lectures on the mind and what we ought to know about it, commencing on November 1st; seven lectures on "Diet: what we should eat and why," commencing on November 3rd. Application for tickets should be made to Miss Olga Nethersole, R.R.C., 12, Stratford Place, W.1.

DURING the third international congress for first aid, held at Amsterdam on September 8th, an international society for first aid was founded by the establishment of a permanent commission with its seat at Amsterdam.

AT a sessional meeting of the Royal Sanitary Institute, on Friday, October 22nd, in the Town Hall, Dover, Dr. Joseph Cates, County M.O.H. Surrey, will open a discussion on "Experiences in diphtheria immunization," and Dr. A. B. McMaster, M.O.H. Dover, will open a discussion on "Port sanitary administration." The chair will be taken at 7.30 p.m. by Professor H. R. Kenwood.

THE first meeting of the seventy-first session of the West Kent Medico-Chirurgical Society will take place at the Miller General Hospital to-day (Friday), at 8.45 p.m. After the business of the annual general meeting has been disposed of clinical cases will be shown and discussed. At the meeting on November 12th Mr. Harold Chapple will read a paper on abdominal pain in women, and on December 10th Dr. Robert Hutchison will deliver the Purvis Oration, his subject being Prognosis."

TWO Chadwick lectures on the development and present state of public health in Germany will be given by Professor Dr. Abel, Director of the Institute of Hygiene, University of Jena, on Tuesday, October 19th, at 5 p.m., and Wednesday, October 20th, at 8 p.m., in the Barnes Hall, Royal Society of Medicine, 1, Wimpole Street, W.1. At the first lecture Sir William J. Collins, K.C.V.O., M.D., Chairman of the Chadwick Trustees, will preside, and at the second lecture Sir Arthur Newsholme, K.C.B., M.D. Admission is free (without tickets).

THE Section of the Royal Society of Medicine for the Study of Disease in Children will hold a meeting, postponed from last session, at Birmingham on Saturday, October 30th. Clinical cases will be shown at the Children's Hospital, Ladywood Road, at 2 p.m., and biochemical and pathological demonstrations will be given at 4.30 p.m.

THE annual dinner of the Chelsea Clinical Society will take place at the Café Royal, Regent Street, under the chairmanship of Dr. Ernest Young, on Tuesday, October 26th, at 7.30 p.m. At the meeting of the society on November 16th there will be a discussion on encephalitis lethargica, and on December 21st a discussion on septicaemia.

THE annual dinner of the Brussels University Medical Graduates' Association will be held on Thursday, October 28th, at the Langham Hotel, Langham Place, W.1, at 7.30 p.m. Price of tickets 12s. 6d., exclusive of wine. Holders of the M.D.Brux. degree who have not received a circular and pamphlet are asked to communicate with the honorary secretary of the association, Dr. A. D. Woolf, 11, Chandos Street, Cavendish Square, W.1.

THE annual meeting of the Medical Sickness, Annuity, and Life Assurance Society will take place at the offices of the company, Lincoln House, 300, High Holborn, W.C., on Monday, October 11th, at 4 p.m.

A LECTURE on ultra-violet light, arranged by the Chartered Society of Massage and Medical Gymnastics, will be given in the library of the Royal Victoria Infirmary, Newcastle-on-Tyne, on Wednesday, October 13th, at 6 o'clock, by Dr. Justina Wilson. Members of the medical profession are invited to attend.

DR. HENRY VUILLET has succeeded Professor C. Roux in the chair of clinical surgery and as head of the surgical department of the Cantonal Hospital at Lausanne.

IN Germany during 1925, 12,476 cases of enteric fever were notified, as compared with 14,439 in the previous year. The diphtheria incidence also fell, there being 36,296 notifications in 1925, as compared with 38,256 in 1924. Acute poliomyelitis diminished from 507 cases in the previous year to 387 cases in 1925; rabies from 48 to 20, and trichinosis from 13 to 9. Encephalitis lethargica was more prevalent, there being 217 cases reported in 1925, as compared with 156 in the previous year. A sharp increase in trachoma occurred, the figures being 2,777 in 1925, as compared with 1,800 in 1924 and 1,200 in 1923. This increase is attributed to a large influx of Polish workmen last year.

CONSEQUENT on the resignation of Sir Charles Ballance from the post of chief surgeon to the Metropolitan Police, Dr. Maurice A. Cassidy has been appointed physician and chief medical officer. Mr. C. Max Page has been appointed consulting surgeon and Dr. H. B. Russell deputy physician to the Metropolitan Police.

THE late Dr. Louis Ernest Desnos, whose death was announced in the JOURNAL (January 9th, p. 74), has left a legacy to the Académie de Médecine, of which he was a member, to found a triennial prize of 3,600 francs to enable a doctor or resident in a Paris hospital to undertake a scientific mission abroad.

A MEMORIAL was recently unveiled at Lebanon, Connecticut, to Dr. William Beaumont, the pioneer American physiologist, who studied gastric digestion through an accidental fistula on Alexis St. Martin.

IN an annotation published on September 18th (p. 536) we referred to the work of the National Institute for the Deaf. We have now received the report of the conference of agencies engaged in the welfare of the deaf, held in London on June 10th last, and called together by the Institute. Copies, price 1s. post free, may be obtained from the Secretary, at the office, 67, Frith Street, Soho Square, W.1.

STATISTICS of births and deaths in the United States are incomplete owing to a defect which the efforts of the United States Census Bureau and of the American Medical Association have not yet been able to remedy. From a manifesto issued by the former and published by the *Journal* of the latter it appears that of the forty-eight States all, with three exceptions, have adequate registration laws, but that in fifteen of them they are not properly enforced. It is hoped that by 1930 it will be possible to abolish the term "registration area" and to substitute for it "national registration."

MR. SAMUEL WILLIAM FARMER, J.P., of Little Bedwyn, Wilts, has left estate of the gross value of £404,330, with net personalty £381,341. Subject to certain legacies and some specific bequests, the residue of the property is bequeathed for the benefit of persons of either sex, particularly and especially, but not necessarily or exclusively, for the upper middle professional classes, who, through ill health or by reason of advancing years, are incapable of earning their own livelihood, or for such educational purposes or for the benefit of such hospitals, nursing or convalescent homes, or other similar charitable objects as his trustees may think fit.

THE office of the National Association for the Prevention of Tuberculosis has been removed from 20, Hanover Square, W.1, to 19, Tavistock Square, W.C.1 (Telephone: Museum 2577).

THE through express Calais-Vintimille (in connexion with the 11 o'clock service from Victoria) will be reintroduced on October 11th. Accommodation can be reserved at the P.L.M. Railway Offices, 179, Piccadilly, or through any tourist agency.

ON the completion of twenty-one years' service Dr. B. H. Slater, medical superintendent of St. Luke's Hospital, Bradford, has been presented with a silver tea service by the hospital staff.

THE late Lieut.-General Sir William Leishman, K.C.B., F.R.S., Director-General of the Army Medical Services, has left estate of the gross value of £7,898.

DR. HERMANN BREHMER, a well known writer on tuberculosis, celebrated his hundredth birthday on August 14th.

THE German Society for the History of Medicine and Natural Sciences, whose organ, *Mitteilungen zur Geschichte der Medizin und der Naturwissenschaften*, is well known to medical historians, celebrated the twenty-fifth anniversary of its foundation last month.

ELEVEN cases of trichinosis with one death occurred at Vienna and Innsbruck in the first six months of this year, as compared with seven cases and three deaths during the whole of 1925.

IN the Dutch Indies 894 fatal cases of plague occurred between March 21st and May 15th.

WE have received a copy of *Die Arztfrage in der Sozialversicherung*, which is a series of papers written, under the editorship of Dr. Hubert Korkisch of Prague, by seventeen prominent representatives of insurance societies and medical and scientific bodies in England, France, Germany, Austria, Switzerland, and Czecho-Slovakia, dealing with the question of national insurance in these countries.

THE Department of Justice at Washington has decided that the Wassermann test shall be performed on all the inmates in the Federal prisons.

A GREAT epidemic of trachoma has broken out in the region of Kharkov. Out of every 1,000 ophthalmological cases 200 are suffering from the disease.

the following year. After serving for eleven years as second assistant medical officer to the Lancashire County Asylum, Whittingham, he was appointed senior assistant medical officer to the County Asylum, Shrewsbury, in February, 1914. On the outbreak of the war he joined the R.A.M.C. and served in India as specialist in mental disease, with the temporary rank of captain. He was a member of the Shropshire and Mid-Wales Branch of the British Medical Association and of the Royal Medico-Psychological Association.

Universities and Colleges.

UNIVERSITY OF OXFORD.

The degree days in the coming academic year are as follows: *Michaelmas Term, 1926*: Thursday, October 21st; Saturday, November 27th; Friday, December 17th. *Hilary Term, 1927*: Thursday, January 27th; Saturday, February 19th; Saturday, April 9th. *Trinity Term, 1927*: Thursday, May 5th; Saturday, June 11th; Friday, July 1st; Saturday, July 23rd; Saturday, August 6th.

University Scholarships in the School of Medicine.

The following awards of scholarships in medicine were announced at the close of the last session:—*Theodore Williams Scholarship in Anatomy*: G. H. Bateman, University College, and J. H. B. Beal, University College (equal). *Theodore Williams Scholarship in Physiology*: F. R. Crookes, University College, and J. H. Hunt, Balliol College (equal). *Theodore Williams Scholarship in Pathology*: H. E. Mansell, B.A., Pembroke College; *proxime accessit*, J. A. Ferguson, B.A., Queen's College. *Radcliffe Scholarship in Pharmacology*: F. Hawking, University College.

VICTORIA UNIVERSITY OF MANCHESTER.

The following candidates have been approved at the examination indicated:

D.P.H. (*Part I*).—Mary Evans. (*Part II*.—J. Rigby, H. M. Turner.

UNIVERSITY OF GLASGOW.

The following candidates have been approved at the examination indicated:

Final M.B., Ch.B.—W. Allan, D. F. Anderson, *G. Armour, J. C. Baird, P. M. I. Baird, R. R. Barr, H. Barton, J. Binnie, J. Black, A. M. Brown, D. W. Buchanan, J. Burns, D. Chisholm, D. D. Clarke, Martha Cleland, W. Clement, E. A. M. Connal, A. Cumming, D. M. Cunningham, J. C. Cuthbert, J. Dunn, A. C. Ewing, Jessie A. C. Flett, Dorothy M. Forsyth, G. Gemmill, C. Gilmour, Margaret A. Glass, M. Gorfinkel, Mary G. Gorrie, Charlotte A. Gunson, J. Hamilton, J. A. Kemp, H. R. Kidd, J. E. W. Lee, D. P. Leiper, S. R. Lipchinsky, R. Logan, S. Lurie, C. E. B. Lynch, R. H. B. McCrae, Mary L. McGregor, M. MacGregor, W. G. Mackay, C. C. McKenzie, W. G. MacLean, T. H. McOwat, M. Manderson, J. Margoyles, A. G. Mearns, Isabella A. Milne, L. Morrison, G. M. Muirhead, J. G. Murdoch, M. Naftalin, J. O'Hara, I. M. Orr, *H. H. Pinkerton, W. T. Rankin, D. M. Reid, G. Rorison, J. P. Semple, G. Shearer, A. Shepherd, J. W. Shepherd, G. S. Sinclair, A. B. Smith, J. L. Smith, *R. B. Smith, W. C. Smith, Eliza M. K. Stevenson, A. R. S. Stewart, M. G. Tallach, G. R. Taylor, A. Thomson, Margaret T. Tindal, H. Vost, L. A. Watson, W. Wilson, J. Wyllie, H. B. Young, W. A. Burnett, R. A. Campbell, A. Esterman, D. MacCallum.

* Distinction in surgery.

The Services.

DEATHS IN THE SERVICES.

Lieut.-Colonel Charles Barromeo Jennings, R.A.M.C.(ret.), died on May 30th, aged 79. He was born on November 4th, 1846, and took the L.R.C.S.I. in 1867, and the L.K.Q.C.P. in 1868. Entering the army as assistant surgeon on March 31st, 1868, he became surgeon lieutenant-colonel after twenty years' service, was placed on half-pay on August 10th, 1892, and retired on April 26th, 1893.

Fleet Surgeon Christopher Harvey, R.N.(ret.), died at Rickmansworth on September 12th. He was educated at Westminster Hospital, and after taking the Edinburgh double qualification in 1879, entered the navy, attaining the rank of fleet surgeon on November 28th, 1890.

Lieut.-Colonel Patrick Mullane, Bengal Medical Service(ret.), died on June 13th, aged 72. He was born on March 12th, 1854, at Ballynora, co. Cork, and was educated at Queen's College, Cork, graduating as M.D. and M.Ch. in the Royal University, Ireland, in 1880. Entering the I.M.S. as surgeon on April 2nd, 1881, he became lieutenant-colonel after twenty years service, and retired on November 1st, 1901. Except for a brief period acting in civil employ in Lower Bengal, his whole service was spent in military employ. He served in the Burma war in 1886-87, taking part in the operations of the second and sixth brigades, and received the frontier medal with two clasps. He also served on the North-West Frontier in the first Miranzai expedition of 1891; in the Chitral campaign of 1895, at the relief of Chitral (medal with clasp), and in the Tirah campaign of 1897-98, including the actions of Dargai and of the Sampagha and Arhanga Passes (two clasps). His elder brother, Jeremiah Mullane, entered the I.M.S. in 1877, and died at Dibrugath on November 10th, 1897.

Medical News.

The annual service of the Guild of St. Luke will be held in Westminster Abbey on Sunday, October 17th, at 6.30 p.m., when the sermon will be preached by the Rev. Canon Sopwith. Members who propose to attend are invited to wear academic dress and to robe in the Jerusalem Chamber. They are requested to notify the secretary, c/o Miss J. S. Moore, King's College, Strand, before October 11th, from whom also a limited number of tickets for other members and friends may be obtained. On October 18th (St. Luke's Day) the annual corporate communion will be held at Grosvenor Chapel, South Audley Street, W.1, at 8.15 a.m., the celebrant being the Rev. Francis Underhill, Acting Warden of the Guild; a private room will be reserved at Lipton's Café, 484, Oxford Street, for a communal breakfast (price 1s. 6d.) if sufficient members signify to Miss Moore their desire to attend. On the evening of the same day the Provost will be at home to members of the Guild at 5 o'clock, and the annual general Chapter will be held at King's College at 5.30 p.m. Chapters will be held on November 16th, when Mr. E. B. Turner will give an address on spiritual healing, and on December 21st, when the Rev. L. C. Downing, of the Industrial Christian Fellowship, will speak on problems connected with religion and industry; both these chapters will commence at 5.30 p.m., at King's College. A special service of thanksgiving for health and of prayer for the sick and suffering will be held in St. Martin's Church, Trafalgar Square, London, on October 18th, at 7.45 p.m. The sermon will be preached by Dr. Arthur Lankester, who has been engaged in missionary work in India, and members of the medical and nursing professions are specially invited.

The annual medical service in Liverpool will be held in the Cathedral on Sunday, October 17th, at 3 p.m. The sermon will be preached by the Bishop of Oxford (Dr. T. B. Strong), and the offertory will be on behalf of the Royal Medical Benevolent Fund. The honorary treasurer, Mr. J. Ernest Nevins, 32, Prince's Avenue, Liverpool, will be pleased to receive donations to this deserving fund from those who may not be able to be present at the service. Seats will be reserved for medical men, who are asked to wear academic costume, and their friends. Application for these seats should be made not later than October 11th to Dr. John Owen, 11, Rodney Street, Liverpool.

The Fellowship of Medicine has arranged a series of lectures on emergencies in medicine and surgery, the first of which will be delivered by Sir Thomas Horder at 5 p.m. on October 14th, at 11, Chandos Street, Cavendish Square, W. On October 15th, at 5 p.m., Mr. M. L. Hine will give a lecture-demonstration on the red eye and the significance of circumcorneal injection, at the Royal Westminster Ophthalmic Hospital. Both the lecture and demonstration are open to members of the medical profession, without fee. A three weeks' course in laryngology, rhinology, and otology is in progress at the Central London Throat, Nose and Ear Hospital. Three courses, lasting a fortnight, begin on October 18th. These are a combined whole-day course in diseases of children in which the Paddington Green, the Victoria Hospital, and the Children's Clinic are participating; a course in gynaecology at the Chelsea Hospital for Women; and an afternoon course in urology at St. Peter's Hospital, where there will be clinical work in the out-patient department, including cystoscopies and a daily lecture on various phases of disease of the urinary tract. A course of eight lecture-demonstrations is being given throughout the month at the London School of Tropical Medicine. Copies of all syllabuses, the General Course Programme of the Fellowship, and its Journal, may be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

At a special meeting of the Andover Town Council on October 1st, the honorary freedom of the borough was conferred upon Councillor E. A. Farr, J.P., in recognition of his services as mayor for three successive years and the great part he has taken in bringing to a successful issue the new war memorial hospital of which he is senior medical officer. An illustrated account of the hospital was published in the Journal of July 10th, 1926 (p. 74).

The medical conference from November 3rd to 7th inclusive termed "Journées Médicales de Montpellier" will include the commemoration of the centenary of the discovery of bromine by Balard. Discussions will be held about military hygiene and the organization of medical societies; numerous excursions have been arranged. Full information may be obtained from the secretary, Dr. Desfour, 8, Rue Emile Zola, Montpellier.

Dr. Alexander Joe, on leaving the Edinburgh Public Health Department to take up the duties of medical superintendent of the North-Western Fever Hospital, Hampstead, has been presented by his colleagues with a silver cigarette box.